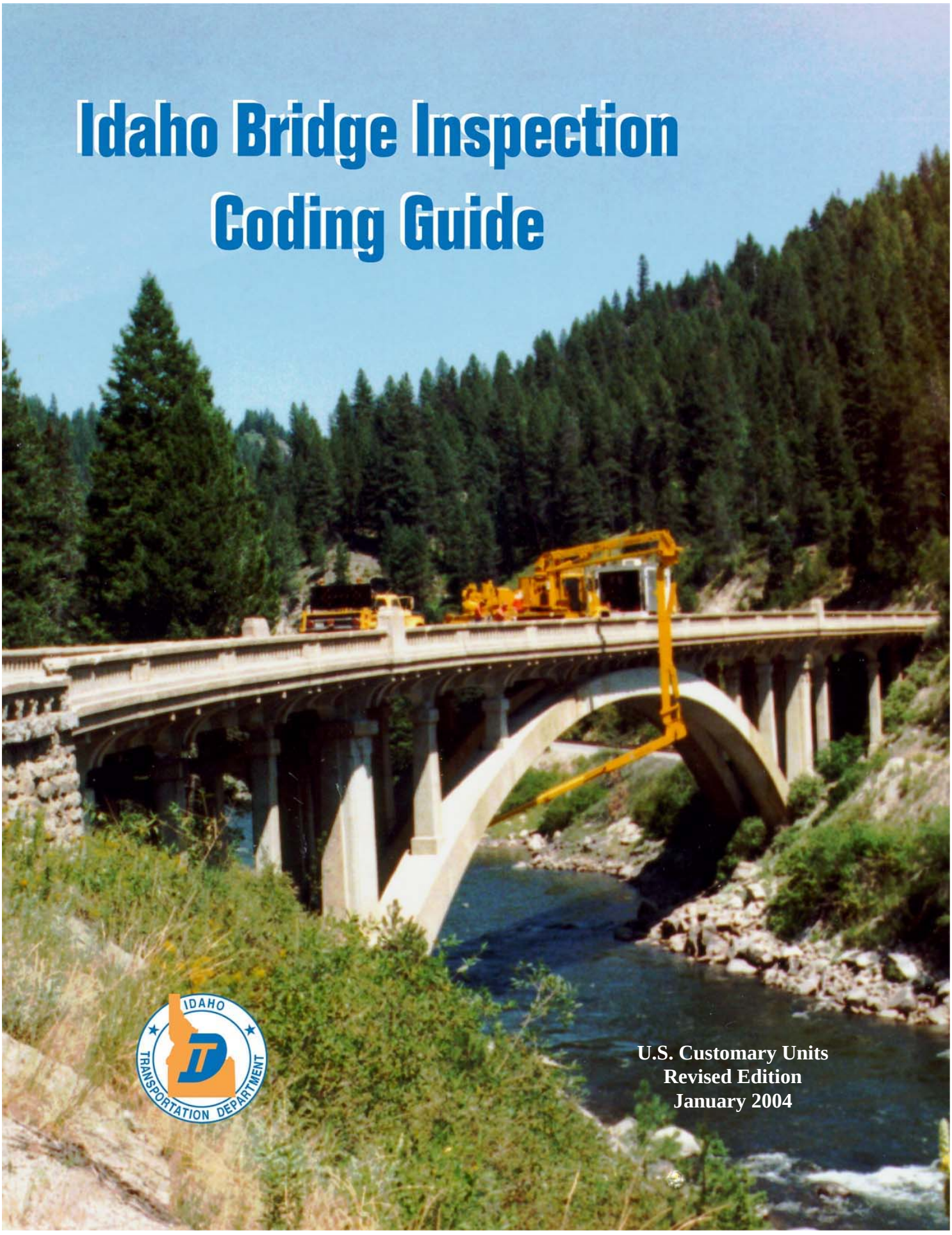
Idaho Bridge Inspection Coding Guide



U.S. Customary Units
Revised Edition
January 2004

IDAHO TRANSPORTATION DEPARTMENT

BRIDGE INSPECTION SECTION

STRUCTURE INVENTORY AND APPRAISAL

CODING GUIDE

U.S. CUSTOMARY UNITS

JANUARY 2004

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INTRODUCTION

This 2004 edition of the **IDAHO BRIDGE INSPECTION CODING GUIDE** incorporates a few changes and corrections from our previous issues of the coding guide.

The Structure Inventory and Appraisal portion of this coding guide is based directly on the Federal Highway Administration's **RECORDING AND CODING GUIDE FOR THE STRUCTURE INVENTORY AND APPRAISAL OF THE NATION'S BRIDGES**, December 1995. The AASHTO **MANUAL FOR CONDITION EVALUATION OF BRIDGES, 1994** addresses requirements for record-keeping, inspection material testing, load rating and posting of bridges. The **BRIDGE INSPECTOR'S REFERENCE MANUAL (BIRM), OCTOBER 2002** discusses inspection procedures and analysis of a structure. Other reporting requirements and qualifications of personnel appear in the National Bridge Inspection Standards (**23 CFR650.3)**. These publications are valuable supplements to this guide.

Many thanks to the ITD Bridge Inspection staff for their efforts in updating this Bridge Inspection Coding Guide.

DEFINITION OF TERMS

For clarity, the definitions of a few terms used in the Guide are provided below.

(a) Bridge. The National Bridge Inspection Standards published in the Code of Federal Regulations (23 CFR 650.3) give the following definition:

> A structure, including supports, erected over a depression or an obstruction, such as water, a highway, or a railway, having track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet (6.1 meters) between undercopings
> of abutments or spring lines of arches, or extreme ends of the openings for multiple boxes; it may include multiple pipes where the clear distance between openings is less than half of the smaller contiguous opening.

(b) Culvert. A structure designed hydraulically to take advantage of submergence to increase hydraulic capacity. Culverts, as distinguished from bridges, are usually covered with embankment and are composed of structural material around the entire perimeter, although some are supported on spread footings with the stream bed serving as the bottom of the culvert.

(c) Inventory Route. The route for which the applicable inventory data is to be recorded. Generally, inventories are made from West to East and South to North.

(d) National Bridge Inventory (NBI). The aggregation of structure inventory and appraisal data collected to fulfill the requirements of the National Bridge Inspection Standards (NBIS) that each State shall prepare and maintain an inventory of all bridges subject to the NBIS.

(e) National Bridge Inventory (NBI) Record. Data that has been coded according to the Guide for each structure carrying highway traffic or each inventory route that goes under a structure. These data are furnished and stored in a compact alphanumeric format on disks suitable for electronic data processing.

(f) National Bridge Inspection Standards (NBIS). Federal regulations establishing requirements for inspection procedures, frequency of inspections, qualifications of personnel, inspection reports, and preparation and maintenance of a State bridge inventory. The NBIS apply to all structures defined as bridges located on all public roads.

(g) Public Roads. Any road under the jurisdiction of and maintained by a public authority and open to public travel.

(h) Structure Inventory and Appraisal (SI&A) Sheet. The graphic representation of the data recorded and stored for each NBI record in accordance with this Guide.

(i) Strategic Highway Corridor Network (STRAHNET). A system of highways which are strategically important to the defense of the United States. It includes the Interstate Highways and 15633 miles (25,215 kilometers) of other non-interstate highways. The Military Traffic Management Command Report SE 89-4b-27, Strategic Highway Corridor Network, January 1991, contains additional information on STRAHNET.

(j) STRAHNET Connectors are roads that connect military installations and ports of embarkation to the STRAHNET. The connector routes represent about 1886 miles (3042 kilometers) of roads that complement STRAHNET.

(k) Indian Reservation Road (IRR). A public road that is located within or provides access to an Indian reservation as described in Title 23, U.S.C., Section 101. The terminus of a road providing access to an Indian reservation or other Indian land is defined as the point at which the road intersects with a road functionally classified as a collector or higher classification (outside the reservation boundary) in both urban and rural areas. In the case of access from an Interstate highway, the terminus is the first interchange outside the reservation.

(l) Land Management Highway system LMHS. Consists of adjoining state and local public roads that provide major public access to Bureau of Land Management administered public lands, resources, and facilities.

(m) Forest Highway (FH). A road, under the jurisdiction of, and maintained by, a public authority and open to public travel; wholly or partly within, or adjacent to, and serving the National Forest System (NFS) and which is necessary for the protection, administration, and utilization of the NFS and the use and development of its resources. (23 CFR 660).

(n) Forest Service Development Road. A forest road wholly under the jurisdiction of the Forest Service, which may be "open to public travel". Bridges on Forest Service Development Roads, which are "open to public travel", are subject to the NBIS.

(o) Base highway Network. The Base Highway Network includes the through lane (mainline) portions of the NHS, rural/urban principal arterial system and rural minor arterial system. Ramps, frontage roads and other roadway are not included in the Base Network.

(p) Highway Performance Monitoring System. The Highway Performance Monitoring System (HPMS) is a database of universe and sample data that describes the nations public road mileage. The data are annually updated and submitted to FHWA by the State Highway Agencies, Puerto Rico and the District of Columbia. The universe data provides some basic arterial and collector systems allow for assessment of the condition, performance, usage and additional characteristics of the nations major highway systems.

(q) Rounding and Truncating of Numerical Data. All numeral values in this Guide, Except as specifically noted, will follow standard rounding criteria, that is, 5 and above will be rounded up to the next higher unit and 4 and below will be rounded down to the next lower unit. This is applicable to all decimal roundings. **In certain items where rounding may cause a safety hazard for clearance, the numeric measurements will be truncated at the appropriate decimal place.** This means that a fractional portion less than a whole unit will be dropped to the lower whole number, for example 2.88 would be truncated to 2.8 when using tenth of a meter accuracy. All decimal points are assumed in the locations as specified in the Guide.

(r) Commonly recognized (CoRe) Structural Elements. A group of structural elements endorsed by AASHTO as a means of providing a uniform basis for data collection for any bridge management system, to enable the sharing of data between States.

INSTRUCTIONS FOR CODING
BRIDGE INSPECTION REPORTS

GENERAL

Inspection reports generally include the following five items:

A. Pontis Elements and Commentary
B. Additional Condition Information
C. Federal Structure Inventory and Appraisal (SIA) Items
D. Posting Information
E. Photographs

A) The Pontis Elements and Commentary should include the following minimum information:

DECK or SLAB ELEMENTS: Type of construction (concrete, timber, etc.), type of wearing surface, defects that document condition rating.

SUPERSTRUCTURE ELEMENTS: Type of member (steel girder, prestressed concrete girder, etc.) number of spans, type of design, defects.

BEARING ELEMENTS: Type of bearings (rigid frame, fixed, pinned, etc.), material of bearing units, condition of units, condition of bearing seats.

SUBSTRUCTURE ELEMENTS: Type of construction, defects, condition of foundation, type of foundation.

EXPANSION JOINT ELEMENTS: Type of joint (compression seal, finger joint, etc.), location, armored or not, defects.

APPROACH SLAB ELEMENTS: Condition of approach slabs, if any, type of pavement, defects.

BRIDGE RAIL ELEMENTS: Type of rail, condition of materials, defects.

SMART FLAGS: Smart flags should be used to identify problems with certain elements (i.e. cracks in underside of deck; soffit smart flag).

Identification of any features which should be monitored closely during subsequent inspections (include any specific descriptions, instructions, or concerns). Nomenclature used to describe bridge components should be consistent.

All signs of distress and deterioration should be noted with sufficient accuracy so that future inspections can readily make a comparison of conditions.

Measurements, photographs, sketches, diagrams, test results, or calculations should generally be included on separate sheets.

B) Additional Condition Information should include Roadway Approaches, Curbs, Embankment, Channel Condition, Signing, Guardrail Information, Utilities, Notes to the Bridge Inspection Engineer, Work Accomplished and Work Recommendations.

C) Federal SIA items shall be recorded and updated on the bridge inventory sheets in accordance with the coding guidelines provided in this manual.

D) Field Posting Information is required. Code only the actual field posting. Recommended posting is coded by the **Bridge Rating Engineer** only. For structures where height or width restrictions are required, the actual field postings shall be documented in the bridge inspection report.

E) Photographs are required for all bridges inspected. An approach view and a side view photo are required. Photographs of notable defects are also recommended.

In the event a serious problem is discovered while inspecting a structure, the inspector shall notify the I.T.D. Bridge Inspection Engineer and a load capacity analysis should be considered to see if weight restrictions should be imposed. If weight restrictions are required, a new safe load posting notice will be forwarded to the administrative agency responsible for the structure.

In the event a serious problem which indicates imminent failure of the structure (or major components of the structure) is discovered, the inspector shall immediately begin bridge closure procedures as outlined under Section 322 - Emergency Maintenance of the I.T.D. Maintenance Manual. For local structures, bridge closures shall be coordinated through the local administrative agency.

The I.T.D. Bridge Inspection Engineer shall be notified <u>immediately</u> of all bridge closures.

State items shall be recorded and updated on the appropriate portions of the bridge inventory sheets in accordance with the coding guidelines provided in this manual.

FEDERAL CODE DESCRIPTIONS

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SUFFICIENCY RATING **5 DIGIT FIELD**

No coding is required for this field. A computer program calculates the sufficiency rating for each structure from the structural conditions and appraisal items coded.

ITEM 1 - STATE CODE **3 DIGIT FIELD**

A numeric identification code unique for each State has been established based on a code scheme presently being used with bridge data reported to the National Resource Analysis Center (NRAC). The first two digits are the Federal Information Processing Standards (FIPS) code for States; and the third digit is the Federal Highway Administration's region code.

The numeric identification assigned to Idaho of 160 has been pre-coded on Idaho Transportation Department's Structure Inventory and Appraisal (SIA&A) database. No coding is required.

Surrounding State Codes:

Code	State
308	Montana
329	Nevada
410	Oregon
498	Utah
530	Washington
568	Wyoming
CAN	Canada

ITEM 2 - DISTRICT **2 DIGIT FIELD**

The highway district in which the bridge is located shall be represented by a two-digit code. Existing district numbers shall be coded as follows:

01	District One
02	District Two
03	District Three
04	District Four
05	District Five
06	District Six

ITEM 3 - COUNTY **3 DIGIT FIELD**

Counties shall be identified using the Federal Information Processing Standards (FIPS) current version of the Geographic Identification Code Scheme (GICS). The codes to be used are:

THREE DIGIT COUNTY CODE SYSTEMS

001	Ada	031	Cassia	061	Lewis
003	Adams	033	Clark	063	Lincoln
005	Bannock	035	Clearwater	065	Madison
007	Bear Lake	037	Custer	067	Minidoka
009	Benewah	039	Elmore	069	Nez Perce
011	Bingham	041	Franklin	071	Oneida
013	Blaine	043	Fremont	073	Owyhee
015	Boise	045	Gem	075	Payette
017	Bonner	047	Gooding	077	Power
019	Bonneville	049	Idaho	079	Shoshone
021	Boundary	051	Jefferson	081	Teton
023	Butte	053	Jerome	083	Twin Falls
025	Camas	055	Kootenai	085	Valley
027	Canyon	057	Latah	087	Washington
029	Caribou	059	Lemhi		

ITEM 4 - PLACE CODE **5 DIGIT FIELD**

Cities, towns, townships, villages, and other census-designated places shall be identified using the Federal Information Processing Standards (FIPS) codes given in the current version of the Census of Population and Housing-Geographic Identification Code Scheme (GICS). If there is no FIPS place code, then code all zeros.

If the structure is not within the boundaries of a listed city or town, code five zeros (00000). Structures located within the boundaries of the listed cities or towns shall be coded with their respective five-digit code as indicated on the following pages:

FIPS PLACE CODES FOR
INCORPORATED CITIES OF IDAHO

NAME	FIPS PLACE CODE
Aberdeen	00100
Acequia	00280
Albion	01000
American Falls	01900
Ammon	01990
Arco	03160
Arimo	03340
Ashton	03610
Athol	03700
Atomic City	03970
Bancroft	04420
Basalt	05230
Bellevue	06220
Blackfoot	07840
Bliss	08470
Bloomington	08560
Boise	08700
Bonners Ferry	09370
Bovill	09730
Buhl	10810
Burley	11260
Butte City	11710
Caldwell	12250
Cambridge	12520
Cascade	13150
Castleford	13240
Challis	13780
Chatcolet	13870
Chubbuck	14680
Clark Fork	14950
Clayton	15490
Clifton	16120
Coeur d'Alene	16750
Cottonwood	18640
Council	18820
Craigmont	19270
Crouch	19720
Culdesac	19900
Dalton Gardens	20350
Dayton	20710
Deary	20890
Declo	20980
Dietrich	21790
Donnelly	22330
Downey	22600
Driggs	22690
Drummond	22780
Dubois	22960
Eagle	23410
East Hope	23680
Eden	24310
Elk River	25120
Emmett	25570
Fairfield	26290
Ferdinand	27460
Fernan Lake	27550
Filer	27730
Firth	27910
Franklin	28810
Fruitland	28990
Garden City	29620
Genesee	30160
Georgetown	30340
Glenns Ferry	31690
Gooding	32140
Grace	32500
Grandview	32770
Grangeville	32950
Greenleaf	33490
Hagerman	34300
Hailey	34390
Hamer	34570
Hansen	34930
Harrison	35200
Hauser	35740

NAME	FIPS PLACE CODE
Hayden	36370
Hayden Lake	36460
Hazelton	36730
Heyburn	37360
Hollister	38080
Homedale	38170
Hope	38440
Horseshoe Bend	38620
Huetter	39070
Idaho City	39610
Idaho Falls	39700
Inkom	40330
Iona	40420
Irwin	40510
Island Park	40600
Jerome	41320
Juliaetta	42130
Kamiah	42400
Kellogg	42580
Kendrick	42760
Ketchum	43030
Kimberly	43570
Kooskia	44110
Kootenai	44200
Kuna	44290
Lapwai	45370
Lava Hot Springs	45820
Leadore	45910
Lewiston	46540
Lewisville	46720
Lost River	47890
McCall	48790
McCammon	48880
Mackay	49240
Malad City	50140
Malta	50230
Marsing	50950
Melba	51850
Menan	52030
Meridian	52120
Middleton	52660
Midvale	52750
Minidoka	53110
Montpelier	53920
Moore	54100
Moscow	54550
Mountain Home	54730
Moyie Springs	55270
Mud Lake	55450
Mullan	55630
Murtaugh	55900
Nampa	56260
Newdale	56800
New Meadows	56890
New Plymouth	56980
Nezperce	57250
Notus	58060
Oakley	58330
Oldtown	58600
Onaway	58870
Orofino	59320
Osburn	59590
Oxford	60040
Paris	60580
Parker	60760
Parma	60940
Paul	61210
Payette	61300
Peck	61840
Pierce	62740
Pinehurst	63100
Placerville	63550
Plummer	63910
Pocatello	64090
Ponderay	64450
Post Falls	64810
Potlatch	64900
Preston	65260
Priest River	65530
Rathdrum	66340
Reubens	67150
Rexburg	67420
Richfield	67600

NAME	FIPS NAME CODE
Rigby	67780
Riggins	67870
Ririe	67960
Roberts	68500
Rockland	69130
Rupert	70660
St. Anthony	71020
St. Charles	71110
St. Maries	71470
Salmon	71650
Sandpoint	72100
Shelley	73450
Shoshone	73900
Smelterville	75070
Soda Springs	75195
Spencer	75970
Spirit Lake	76060
Stanley	76780
State Line	77050
Stites	77500
Sugar City	78040
Sun Valley	78850
Swan Valley	79120
Tensed	80200
Teton	80380
Tetonia	80470
Troy	82360
Twin Falls	82810
Ucon	83350
Victor	84250
Wallace	84790
Wardner	85240
Warm River	85420
Weippe	86050
Weiser	86140
Wendell	86320
Weston	87040
White Bird	87310
Wilder	87670
Winchester	87850
Worley	88480

ITEM 5 - INVENTORY ROUTE **9 DIGIT FIELD**

The complete data for the structure is coded with respect to the route carried by the structure, even if the route is not on a Federal-aid system.

The inventory route is a 9-digit code composed of 5 segments.

Segment	Description	Length
5A	Record Type	1 digit
5B	Route Signing Prefix	1 digit
5C	Designated Level of Service	1 digit
5D	Route Number	5 digits
5E	Directional Suffix	1 digit

Segment 5A - Record Type **1 digit**

There are two types of National Bridge Inventory records: "on" and "under". Code the first digit (leftmost) using one of the following codes:

Code	Description
1	Route carried "on" the structure
2	Single route goes "under" the structure
A through Z	Multiple routes go "under" the structure

A signifies the first of multiple routes under the structure
B signifies the second of multiple routes under the structure
Z signifies the 26th route under the structure

"On" signifies that the inventory route is carried "on" the structure. Each bridge structure carrying highway traffic must have a record identified with a type code = 1 (numeric). All of the NBI data items must be coded, unless specifically excepted, with respect to the structure and the inventory route "on" it.

"Under" signifies that the inventory route goes "under" the structure. If an inventory route beneath the structure is a Federal-aid highway, is a STRAHNET route or connector or is otherwise important, a record must be coded to identify it. The type coded must be 2 or an alphabetic letter A through Z. Code 2 for a single route under the structure. If 2 or more routes go under a structure on separate roadways, the code of 2 shall not be used. Code A, B, C, D, etc. consecutively for multiple routes on separate roadways under the structure. STRAHNET routes shall be listed first. When this item is coded 2 or A through Z, only the following items must be coded: Items 1, 3-11, 16, 17, 19, 20, 26-30, 42, 43, 47-49, 100-104,109 and 110. All other items may remain blank.

It cannot be overemphasized that all route-oriented data must agree with the coding as to whether the inventory route is "on" or "under" the structure.

Tunnels shall be coded only as an "under" record; that is, they shall not be coded as a structure carrying highway traffic.

(continued)

ITEM 5 - INVENTORY ROUTE (cont'd)

Segment 5A - Record Type (cont'd)

There are situations of a route "under" a structure, where the structure does not carry a highway, but may carry a railroad, pedestrian traffic, or even a building. These are coded the same as any other "under" record and no "on" record shall be coded.

Segment 5B - Route Signing Prefix **1 digit**

In the second position, identify the route signing prefix for the inventory route using one of the following codes:

Code	Description
1	Interstate highway
2	U.S. numbered highway
3	State highway
4	County highway
5	City street
6	Federal lands road
7	State lands road
8	Other

When 2 or more routes are concurrent, the highest class of route will be used. The hierarchy is in the order listed above.

Segment 5C - Designated Level of Service **1 digit**

In the third position, identify the designated level of service for the inventory route using one of the following codes:

Code	Description
0	None of the below
1	Mainline
2	Alternate
3	Bypass
4	Spur
6	Business
7	Ramp, Wye, Connector, etc.
8	Service and/or unclassified frontage road

Segment 5D - Route Number **5 digit**

Code the route number of the inventory route in the next 5 positions. This value shall be right justified in the field with leading zeros filled in. (See examples below.)

If concurrent routes are of the same hierarchy level, denoted by the route-signing prefix, the lowest numbered route shall be coded. Code 00000 for bridges on roads without route numbers.

(continued)

ITEM 5 - INVENTORY ROUTE (cont'd)

Segment 5E - Directional Suffix **1 digit**

In the last position, code the directional suffix to the route number of the inventory route when it is part of the route number, using one of the following codes:

Code	Description
0	Not applicable
1	North
2	East
3	South
4	West

In some cases, letters may be used as part of a route number and not to indicate direction. In such cases, the letter should be included in the 5-position route number field.

EXAMPLES:

Route	Code
Interstate 95, on	111000950
Interstate 70S, under	211000703
State Highway 104, Spur, under	234001040
U.S. 30E Bypass, on	123000302
City street, on	150000000
Ramp from I-81, under	217000810
County Highway 173 on	141001730
Interstate 84 under	211000840
Interstate 49B on	1110049B0
State Hwy 120 (STRAHNET Rte) under	A31001200
Alternate State Highway 130 under	B32001300
Tunnel on Interstate 70	211000700
Pedestrian overpass	080000000

ITEM 6 - FEATURES INTERSECTED **24 DIGIT FIELD**

The information to be coded for this item will be the name or names of the features intersected by the structure. When one of the features intersected is another highway, the signed number or name of the highway (e.g., I 80N, US 95, SH 55, Mill Road) should appear first (left-most) in the field. The names of any other features should follow, separated by a semi- colon or a comma. Parenthesis shall be used to provide a second identification of the same feature or bridge name (see example 3). Abbreviations may be used where necessary, but an effort should be made to keep them meaningful. The data in this segment shall be left justified in the first 24 positions with trailing zeros.

EXAMPLES:

1. I 81, US 51, Mill Road
2. SR 772, Mississippi R
3. SR 42 (Pond Road)

ITEM 7 - FACILITY CARRIED BY STRUCTURE **18 DIGIT FIELD**

The facility being carried by the structure shall be coded. Coding for this item is to be left justified without trailing zeros.

EXAMPLES:

1. county road 450
2. US 66
3. main street
4. C & O Railroad
5. pedestrian bridge

ITEM 8 - BRIDGE KEY (NBI STRUCTURE NUMBER) **15 DIGIT FIELD**

It is required that the official Bridge Key be recorded. It is not necessary to code this number according to an arbitrary national standard. Each agency should code the Bridge Key according to its own internal processing procedures. When recording and coding for this item and following items, any structure or structures with a closed median should be considered as <u>one</u> structure, not <u>two</u>. Closed medians may have either mountable or non-mountable curbs or barriers.

The Bridge Key must be unique for each bridge within the State, and once established should preferably never change for the life of the bridge. If it is essential that Bridge Key (s) must be changed, all 15 digits are to be filled. For any Bridge Key changes, a complete cross reference of corresponding "old" and "new" numbers must be provided to the FHWA Bridge Division. The cross-reference shall include both a computer tape or diskette and a printed listing in the FHWA required format.

The identical Bridge Key must appear on the "on" and all "under" records associated with a particular structure. (Refer to Item 5 - Inventory Route).

ITEM 9 - LOCATION **25 DIGIT FIELD**

This item will be coded providing a brief narrative description of the bridge location. It is required that the location be coded as distance from cities or towns as shown on official state highway department or county maps. Distances shall be to the nearest tenth of a mile in the North, South, East or West direction.

EXAMPLES:
1. 2.4 S., 27.7 E. Firth
2. 17 W. Boise

The coding for this item is to be left justified without trailing zeros.

ITEM 10 - INVENTORY ROUTE, MINIMUM VERTICAL CLEARANCE **4 DIGIT FIELD**

Code the minimum vertical clearance at the bridge site over the inventory route identified in Item 5, whether the route is "on" the structure or "under" the structure. The minimum vertical clearance for a 10-foot width of the pavement, or traveled part of the roadway, where the clearance is the greatest shall be recorded and coded in feet to the hundredth of a foot. For structures having multiple openings, clearances for each opening shall be recorded, but only the greatest of the minimum clearances for the two or more openings shall be coded regardless of the direction of travel. This would be the practical maximum clearance for a high vehicle. When no restriction exists, code 9999.

ITEM 11 - MILEPOINT **7 DIGIT FIELD**

The Milepost and Coded Segment (MACS) system is used by I.T.D. as a milepoint location reference system. The milepoint will refer to the beginning of the bridge in the direction of increasing mileage. Code a 6-digit number to represent the milepoint to thousandths of a mile. No blank spaces are permitted. The decimal indicating thousandths of a mile should also be coded. If a MACS milepoint has not been assigned or is not appropriate, code all zeros. If the milepoint location of the structure is at the beginning of the route, code a nominal value of 000.001 rather than 000000.

EXAMPLES:	Milepost	Coding
	1.250	001.250
	103.101	103.101
	2.000	002.000
	Not Assigned	000.000

ITEM 12 - BASE HIGHWAY NETWORK **1 DIGIT FIELD**

This item is to be coded for all records on the inventory. The Base Highway Network includes the through lane (mainline) portions of the NHS, rural/urban principal arterial system and rural minor arterial system. Ramps, frontage roads and other roadways are not included in the Base Network. For the inventory route identified in Item 5 - Inventory Route, indicate whether the inventory route is on the Base Highway Network or not on that network. Use one of the following codes:

Code	Description
0	Inventory Route is not on the Base Network.
1	Inventory Route is on the Base Network.

ITEM 13 - LRS INVENTORY ROUTE, SUBROUTE NUMBER **12 DIGIT FIELD**

If Item 12 - Base Highway Network has been coded 1, the information to be recorded for this item is inventory route for the States linear referencing system (LRS). If Item 12 has been coded 0, this entire item should be left blank. This item is a 12-digit code composed of 2 segments.

Segment	Description	Length
13A	LRS Inventory Route	10 digits
13B	Sub-route Number	2 digits

The LRS inventory route and sub-route numbers to be reported in this item must correspond to the LRS inventory route and sub-route numbers reported by the State for the HPMS. The LRS inventory route number is coded in the ten positions of segment 13A, right justified and zero filled. The sub-route number, if it exists, is coded in the two positions of segment 13B, right justified and zero filled.

The LRS inventory route number can be alphanumeric, but must not contain blanks. The LRS inventory route number is not necessarily the same as that posted along the roadway, but is a number used to uniquely identify a route within at least a county and perhaps throughout the State.

The sub-route number is a number that uniquely identifies portions of an inventory route section where duplicate mile points occur. These sub-route numbers, if they exist, are identified in the State's HPMS_LRS records. If there is no sub-route number, code 00 in this segment.

Examples:	Code
Inventory Route 2775, Sub-route Number 0	000000277500
Inventory Route 2775, Sub-route Number 3	000000277503

ITEM 14 – NOT USED

ITEM 15 – NOT USED

ITEM 16 - LATITUDE **6 DIGIT FIELD**

Code the latitude of each bridge in degrees, minutes, and seconds to the nearest full second. The point of the coordinate will be the beginning of the bridge in the direction of inventory. County coordinate maps prepared by Planning can be used to accurately scale latitude and longitude for each bridge. Also, if available, a Global Positioning System (GPS) is preferred.

EXAMPLE: GPS 45^0 27’ 18.55” Code 452719
Or 45^0 27’ 19”

ITEM 17 - LONGITUDE **7 DIGIT FIELD**

Code the longitude of each bridge in degrees, minutes, and seconds to the nearest full second. The point of the coordinate will be the beginning of the bridge in the direction of inventory. County coordinate maps prepared by Planning can be used to accurately scale latitude and longitude for each bridge. Also, if available, a Global Positioning System (GPS) is preferred.

EXAMPLE: GPS 115^0 05’ 50.65” Code 1150551
Or 115^0 05’ 51”

ITEM 18 – NOT USED

ITEM 19 - BYPASS OR DETOUR LENGTH **3 DIGIT FIELD**

If a ground level bypass for the route given in Item 5 is available at the structure site, code the detour length as 00. Otherwise, indicate the actual length (to the nearest mile) of a feasible detour using the nearest comparable route.

If the bridge is one of twin bridges and is not at an interchange, code 01 where the other twin bridge can be used as a temporary bypass with a reasonable amount of crossover grading. In other cases, indicate (to the nearest mile) the actual detour length. The detour length should represent the total additional travel for a vehicle that would result from closing of the bridge. The factor to consider when determining if a bypass is available at the site is the potential for moving vehicles, including military vehicles, around the structure.

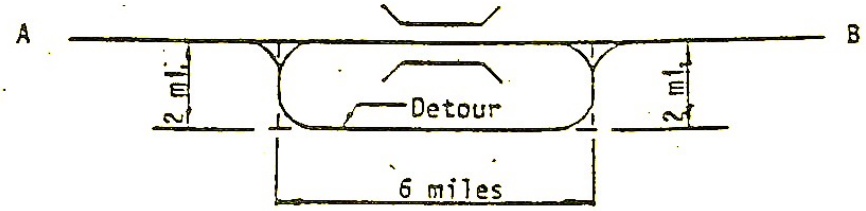
(continued)

ITEM 19 - BYPASS OR DETOUR LENGTH (cont'd) **3 DIGIT FIELD**

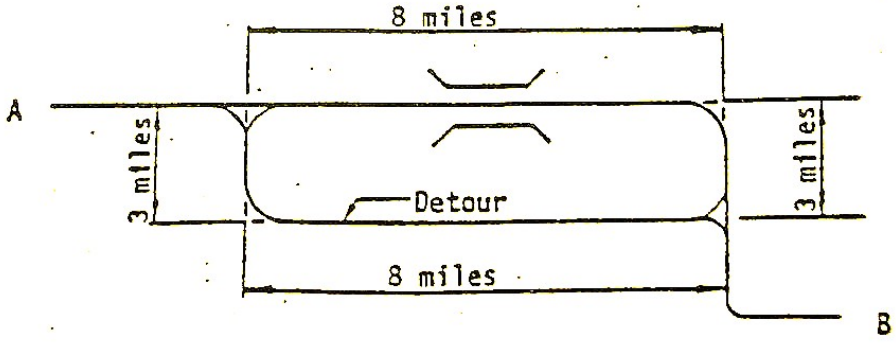
This is particularly true when the structure is in an interchange. For instance, a bypass likely would be available in the case of diamond interchanges, interchanges where there are service roads available, or other interchanges where the positioning and layout of the ramps is such that they could be used without difficulty to get around the structure. Code 124 for 124 miles or more.

EXAMPLES:

	Code
Diamond interchange, structure bypassable	00
Cloverleaf, not bypassable; 8 mile detour	08
Structure over river, 131 mile detour	124
Structure over highway, no interchange, bypassable at ground level	00
Structure over waterway with companion twin bridge	01
Structure on dead end road	124



Bypass, Detour Length A - B = 4 miles



Bypass, Detour Length A - B = 0 miles

ITEM 20 - TOLL **1 DIGIT FIELD**

The toll status of the structure is indicated by this item. For all Idaho bridges this item is coded a 3.

ITEM 21 - MAINTENANCE RESPONSIBILITY **2 DIGIT FIELD**

The codes below shall be used to represent the type of agency that has primary responsibility for maintaining the structure. If more than one agency has equal maintenance responsibility, code one agency in the hierarchy of State, Federal, County, City, Railroad and other private. The actual name of the agency responsible for the maintenance of the structure can be found by interpreting the codes in Item 4 and Item 216.

Code	Description
01	State Highway Agency
02	County Highway Agency
03	Town or Township Highway Agency
04	City or Municipal Highway Agency
11	State Park, Forest, or Reservation Agency
12	Local Park, Forest, or Reservation Agency
21	Other State Agencies
25	Other Local Agencies
26	Private (other than railroad)
27	Railroad
31	State Toll Authority
32	Local Toll Authority
60	Other Federal Agencies (not listed below)
61	Indian Tribal Government
62	Bureau of Indian Affairs
63	Bureau of Fish and Wildlife
64	U.S. Forest Service
66	National Park Service
68	Bureau of Land Management
69	Bureau of Reclamation
70	Corp of Engineers / Civilian
71	Corp of Engineers / Military
72	Air Force
73	Navy/Marines
74	Army
75	NASA
76	Metropolitan Washington Airport Services
80	Unknown

ITEM 22 - OWNER **2 DIGIT FIELD**

The codes used in Item 21 - Maintenance Responsibility shall be used to represent the type of agency that is the primary owner of the structure. If more than one agency has equal ownership, code one agency in the hierarchy of State, Federal, county, city, railroad, and other private. The actual name of the owner of the bridge shall be recorded on the inspection form under Item 216 using the appropriate numeric code.

ITEM 23 – NOT USED

ITEM 24 – NOT USED

ITEM 25 – NOT USED

ITEM 26 - FUNCTIONAL CLASSIFICATION **2 DIGIT FIELD**

For the inventory route, code the functional classification using one of the following codes:

RURAL

Code	Description
01	Principal Arterial -Interstate
02	Principal Arterial - Other
06	Minor Arterial
07	Major Collector
08	Minor Collector
09	Local

URBAN (5000 +)

Code	Description
11	Principal Arterial -Interstate
12	Principal Arterial Other Freeways or Expressways
14	Other Principal Arterial
16	Minor Arterial
17	Collector
19	Local

The codes must be compatible with the codes for Item 104 - Highway System of the inventory route. The bridge location and not the character of the roadway shall determine the urban or rural designation. The bridge shall be coded rural if not inside a designated urban area.

ITEM 27 - YEAR BUILT **4 DIGIT FIELD**

Record and code the year of construction for the structure. Code all four digits of the year in which construction of the structure was completed. If the year built is unknown, provide a best estimate. See Item 106 - Year Reconstructed for rehabilitated bridges.

EXAMPLES:	Code
Construction completed 1996	1996
Construction completed 1900	1900

ITEM 28 - LANES ON AND UNDER STRUCTURE **4 DIGIT FIELD**

Record and code the number of lanes being carried by the structure and being crossed over by the structure as a 4-digit number composed of 2 segments. The number of lanes should be right justified in each segment with leading zero(s) coded as required.

Segment	Description	Length
28A	Lanes on the structure	2 digits
28B	Lanes under the structure	2 digits

Include all lanes carrying highway traffic (i.e., cars, trucks, buses) which are striped or otherwise operated as full width traffic lane for the entire length of the structure or under the structure. This shall include any full width merge lanes and ramp lanes, and shall be independent of direction of traffic flow (i.e. a one-lane bridge carrying two-directional traffic is still considered to carry only one lane on the structure). It should be noted here that for the purpose of evaluating the Deck Geometry - Item 68, any "1-lane" bridge, not coded as a ramp (Item 5C = 7), which has a bridge roadway width, curb to curb - Item 51 coded 16 feet or greater shall be evaluated as 2 lanes.

When the inventory route(*****) is "on" the bridge, the sum of the lanes on all inventoried routes under the bridge shall be coded for segment 28B. When the inventory route is "under" the bridge (the first digit of Item 151 - Inventory Route is coded 2 or A through Z), only the number of lanes being identified by that "under" record shall be coded in Item 28B.

When the inventory route is "under" the structure, the obstruction over the inventory route may be other than a highway bridge (railroad, pedestrian, pipeline, etc). Code 00 in segment 28A for the cases where there are no roadway lanes on the obstructing structure.

Double deck bridges may be coded as one structure or two as noted in the examples below. Either method is acceptable; however, all related data must be compatible with the method selected. See examples.

EXAMPLES:	Code
1 lane on, 0 lanes under	0100
3 lanes on, 1 lane under	0301
5 lanes on double deck each direction, 2 lanes under	1002*******
5 lanes on double deck each direction, 2 lanes under	0502********
8 lanes on 2-way road, 12 lanes under	0812******
Railroad and pedestrian with 4 lanes under	0004

(continued)

ITEM 28 - LANES ON AND UNDER STRUCTURE (cont'd) 4 DIGIT FIELD

* For the inventory route on the bridge, the first digit of Item 5 - Inventory Route is coded 1.

** This example has 3 inventory routes below the bridge of 6, 4, and 2 lanes of 2-way traffic respectively. When coding an "under" record for each of these inventory routes, the first digit of Item 5 - Inventory Route is coded
A, B, and C, and Item 28 is coded 0806, 0804, and 0802 respectively for the 3 required records.

*** Acceptable if coded as 1 bridge. However, other data such as ADT, curb-to-curb width, etc., must be for both decks.

**** Acceptable if coded as 2 separate bridges. However, other data such as ADT, curb-to-curb width, etc., must be for a single deck.

ITEM 29 - AVERAGE DAILY TRAFFIC 6 DIGIT FIELD

Code a 6-digit number that shows the average daily traffic volume for the inventory route identified in Item 5. Make certain the unit's position is coded even if estimates of ADT are determined to tens or hundreds of vehicles, that is, appropriate leading and trailing zeros shall be coded. The ADT coded should be the most recent ADT counts available. Included in this item are the trucks referred to in Item 109 - Average Daily Truck Traffic.

The ADT shown must be compatible with the other items coded for the bridges; i.e., twin bridges with an open median, if items 28 - Lanes On and Under the Structure and 51 - Bridge Roadway Width, Curb to Curb are coded for one bridge, then the ADT must be for one bridge and not the total for the route.

EXAMPLES:	Volume	Code
	540	000540
	15,600	015600
	24,000	024000

ITEM 30 - YEAR OF AVERAGE DAILY TRAFFIC 4 DIGIT FIELD

Code the year for which the ADT in Item 29 represents. Code all four digits of the year represented.

ITEM 31 - DESIGN LOAD 1 DIGIT FIELD

Use the codes below to indicate the live load for which the structure was designed. The numerical value of the railroad loading should be recorded on the form. Classify any other loading, when feasible, using the nearest equivalent of the H loadings given below.

(continued)

ITEM 31 - DESIGN LOAD (cont'd) **1 DIGIT FIELD**

Code	Metric Description	English Description
1	M 9	H 10
2	M13.5	H 15
3	MS 13.5	HS 15
4	M18	H 20
5	MS 18	HS 20
6	MS 18+MOD	HS 20+MOD
7	Pedestrian	Pedestrian
8	Railroad	Railroad
9	MS 22.5	HS 25
0	Other or Unknown (describe on recording form)	

ITEM 32 - APPROACH ROADWAY WIDTH (XXX.X FEET) **4 DIGIT FIELD**

Code to the nearest tenth of a foot a 4-digit number that represents the normal width of usable roadway approaching the structure. Usable roadway width will include the width of traffic lanes and the width of shoulders where shoulders are defined as follows:

Shoulders must be constructed and normally maintained flush with the adjacent traffic lane, and must be structurally adequate for all weather and traffic conditions consistent with the facility carried.

Unstabilized grass or dirt, with no base course, flush with and beside the traffic lane is not to be considered a shoulder for this item.

For structure with medians of any type and double-decked structures, this item should be coded as the sum of the usable roadway widths for the approach roadways; i.e., all median widths that do not qualify as shoulders should not be included in this dimension. When there is a variation between the approaches at either end of the structure, record and code the most restrictive of the approach conditions. Coded roadway width shall not be less than 8 feet.

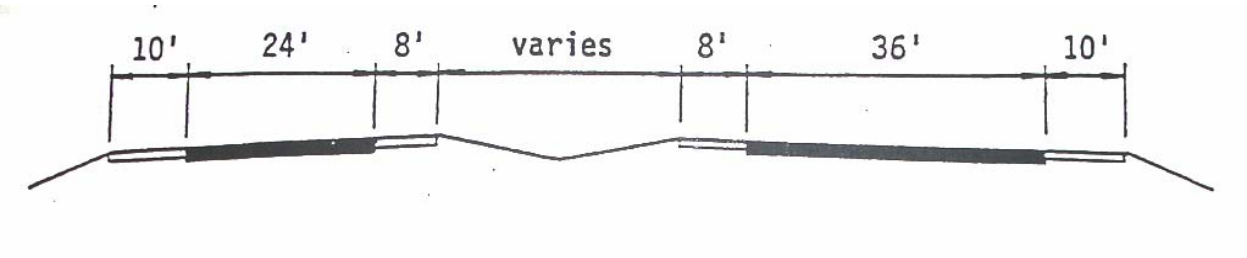
EXAMPLES:

Left Shoulder	Left Roadway	Median Shoulders	Right Roadway	Right Shoulder	Code
4.0	-	-	16	6.0	026.0
6.0	-	-	36	12.0	054.0
12.0	48	30	48	12.0	150.0
10.0	24	16	36	10.0	096.0

The last example above represents the coding method for a structure in which the most restrictive approach has the cross-section shown below:

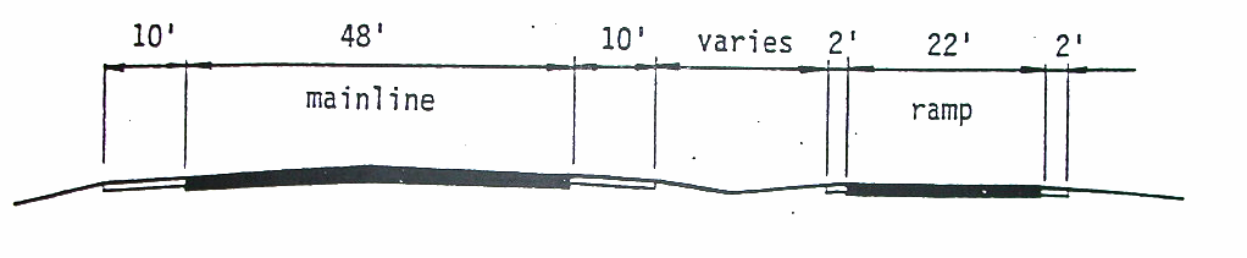
(continued)

ITEM 32 - APPROACH ROADWAY WIDTH (Cont'd) **4 DIGIT FIELD**



Regardless of whether the median is open or closed, the data coded must be compatible with the other related route and bridge data, i.e., if Item 51 - Bridge Roadway Width, Curb-to-Curb is for traffic in one direction only, then Items 28, 29, 32 etc. must be for traffic in one direction only.

If ramp is adjacent to the through lanes approaching the structure, it shall be included in the approach roadway width. The total approach roadway width for the example on the next page is 94 feet (a code of 094).



ITEM 33 - BRIDGE MEDIAN **1 DIGIT FIELD**

Indicate with a 1-digit code if the median is non-existent, open or closed. The median is closed when the area between the two roadways at the structure is bridged over and is capable of supporting traffic. All bridges that carry either one-way traffic or two-way traffic separated only by a centerline will be coded 0 for no median.

Code	Description by Route
0	No Median
1	Open Median
2	Closed Median (no barrier)
3	Closed Median (with non-mountable barriers)

Open Median

Closed Median

Closed Median with Non-mountable Barrier

ITEM 34 - SKEW **2 DIGIT FIELD**

The skew angle is the angle between the centerline of a pier and a line normal to the roadway centerline. When plans are not available, the angle is to be field measured if possible. Record the skew angle to the nearest degree. If the skew angle is 0^0 it should be so coded. When the structure is on a curve or if the skew varies for some other reason, the average skew should be recorded, if reasonable. Otherwise, record 99 to indicate a major variation in skews of substructure units. A 2-digit number should be coded.

EXAMPLES:

Skew	Code
10 Degrees	10
8 Degrees	08
29 Degrees	29
0 Degrees	00

ITEM 35 - STRUCTURE FLARED **1 DIGIT FIELD**

Code this item to indicate if the structure is flared, i.e., the width of the structure varies. Generally, such variance will result from ramps converging with or diverging from the through lanes on the structure, but there may be other causes. Minor flares at ends of structure should be ignored.

Code	Description
0	No Flare
1	Yes, Flared

ITEM 36 - TRAFFIC SAFETY FEATURES **4 DIGIT FIELD**

Bridge inspection shall include the recording of information on the following traffic safety features so that the evaluation of their adequacy can be made. The data collected shall apply only to the route on the bridge. Collision damage or deterioration of the elements is not considered when coding this item.

Bridge railings should be evaluated using the current AASHTO LRFD Bridge Design Specifications, which calls for railings to meet specific geometric criteria and to resist specified static loads without exceeding the allowable stresses in their elements. A railing system and its connection to the deck shall be approved only after they have been shown through crash testing to be satisfactory for the desired test level. Railings that meet these criteria and loading conditions are considered acceptable. Other railings systems can be considered crashworthy if they can be geometrically and structurally evaluated as equal to a crash-tested system. Acceptable guidelines for bridge railing design and crash testing are found in the NCHRP Report Number 350. Traffic safety features are a 4-digit code composed of 4 segments.

(continued)

ITEM 36 - TRAFFIC SAFETY FEATURES (cont'd)

Segments	Description	Length
36A	Bridge railings	1 digit
36B	Transitions	1 digit
36C	Approach guardrail	1 digit
36D	Approach guardrail ends	1 digit

36A Bridge Railings: Some factors that affect the proper functioning of bridge railing are height, material, strength, and geometric features. Railings must be capable of smoothly redirecting an impacting vehicle. Bridge railings should be evaluated using the AASHTO LRFD Bridge Design Specifications as a guide for establishing a currently acceptable standard.

36B Transitions: The transition from approach rail to bridge railing requires that the approach rail be firmly attached to the bridge railing. It also requires that the approach railing be gradually stiffened as it comes closer to the bridge railing. The ends of curbs and safety walks need to be gradually tapered out or shielded.

36C Approach Rail: The structural adequacy and compatibility of approach guardrail with transition designs should be determined. Rarely does the need for a barrier stop at the end of a bridge. Thus, an approach guardrail with adequate length and structural qualities to shield motorists from the hazards at the bridge site needs to be installed. In addition to being capable of safely redirecting an impacting vehicle, the approach rail must also facilitate a transition to the bridge railing that will not cause snagging or pocketing of an impacting vehicle. Acceptable guardrail design suggestions are contained in the Idaho Transportation Department Standard Drawings or the AASHTO Roadside Design Guide.

36D Approach Rail Ends: As with guardrail ends in general, the ends of approach rails to bridges should be flared, buried, made breakaway, or shielded. Design treatment of guardrail ends is given in the AASHTO Guide for Selecting, Locating, and Designing Traffic Barriers.

(continued)

ITEM 36 - TRAFFIC SAFETY FEATURES (cont'd)

The data collected shall apply only to the route on the bridge. Collision damage or deterioration of the elements is not considered when coding this item. Traffic safety features are a 4-digit code composed of 4 segments. The reporting of these features shall be as follows:

Code	Description
0	Inspected feature does not meet currently acceptable standards or a safety feature is required and none is provided.*
1	Inspected feature meets currently acceptable standards.*
N	Not applicable or a safety feature is not required.*

* For structures on the NHS, National standards are set by regulation. For those not on the NHS, it shall be the responsibility of the Idaho Transportation Department to set the standards.

EXAMPLE:	Code
All features meet currently acceptable standards except transition from bridge rail to guardrail.	1011

ITEM 37 - HISTORICAL SIGNIFICANCE **1 DIGIT FIELD**

The historical significance of a bridge involves a variety of characteristics: the bridge may be a particularly unique example of the history of engineering; the crossing might be significant itself; the bridge might be associated with a historical property or area; or historical significance could be derived from the fact the bridge was associated with significant events or circumstances. Use one of the following codes:

Code	Description
1	Bridge is on the National Register of Historic Places.
2	Bridge is eligible for the National Register of Historic Places.
3	Bridge is possibly eligible for the National Register of Historic Places (Requires further investigation before determination can be made) or bridge is on a State or local historic register.
4	Historical significance is not determinable at this time.
5	Bridge is not eligible for the National Register of Historic Places.

ITEM 38 - NAVIGATION CONTROL **1 DIGIT FIELD**

Indicate for this item whether or not navigation control (a bridge permit) is required. The U.S. Coast Guard or the U.S. Army Corps of Engineers makes the determination of whether or not a watercourse is navigable, whichever is applicable. Code one of the following:

Code	Description
N	Not applicable, no waterway
0	No navigation control on waterway (bridge permit not required)
1	Navigation control on waterway (bridge permit required)

The following Idaho waters are considered navigable by the U.S. Coast Guard memo of September 22, 1969.

1. Lake Coeur d'Alene, and Lake Chatcolet and Hidden Lake at the South end of Lake Coeur d'Alene.
2. Pend Oreille Lake.
3. Priest Lake.
4. Snake River to Guffey Dam near Murphy and Melba, Idaho.
5. The Kootenai River within Idaho and Montana.
6. St. Joe River from Lake Coeur d'Alene to the highway bridge.
7. Spokane River.
8. Clearwater River from mouth to backwater of the Dworshak Dam.
9. Pend Oreille River.
10. Clark Fork River to the Northern Pacific Railroad bridge about 4 miles above the mouth.(Starting at Lake Pend Oreille)
11. Sand Creek to the backwaters of Lake Pend Oreille.
12. Priest River.

All bridges over waters within the above limits shall be coded with numeric 1. All other bridges over waterways will be coded as "0".

ITEM 39 - NAVIGATIONAL VERTICAL CLEARANCE (XXX.X FEET) **4 DIGIT FIELD**

If Item 38 - Navigation Control has been coded 1, record to the nearest tenth of a foot (rounding down) the clearance imposed at the site as measured above a datum that is specified on a navigation permit issued by a control agency. This measurement will show the clearance that is allowable for navigational purposes. In the case of a swing or bascule bridge, the vertical clearance shall be measured with the bridge in the closed position (i.e., open to vehicular traffic). The vertical clearance of a vertical lift bridge shall be measured with the bridge in the raised or open position. The measurement shall be coded as a 4-digit number. If Item 38-Navigation Control has been coded 0 or N, code 0000 to indicate not applicable.

EXAMPLES:

Actual Vertical Clearance	Code
150.52 feet	150.5
20.38 feet	020.3

ITEM 40 - NAVIGATION HORIZONTAL CLEARANCE (XXXX.X FEET) **5 DIGIT FIELD**

If Item 38 - Navigational Control has been coded 1, record for this item the minimum horizontal clearance in feet. Truncated to the nearest foot. This measurement should be that shown on the navigation permit and may be less than the structure allows. If a navigation permit is required but not available, use the minimum horizontal clearance between fenders, if any, or the clear distance between piers or bents. Code the clearance as a 5-digit number. Code 0000.0 if Item 38 - Navigation Control is coded 0 or N.

EXAMPLES:

Horizontal Clearance	Code
53.68 feet	0053.6
95.02 feet	0095.0
202.25 feet	0202.2

ITEM 41 - STRUCTURE STATUS **1 DIGIT FIELD**

This item provides information about the actual operational status of a structure. The field review could show that a structure is posted but with Item 70 - Bridge Posting indicating that posting is not required. This is possible and acceptable coding since Item 70 is based on the operating stress level and the governing agency posting procedures may specify posting at some stress level less than the operating rating. One of the following codes shall be used:

Code	Description
A	Open, no restriction
B	Open, posting recommended but not legally implemented (all signs not in place).
D	Open, would be posted or closed except for temporary shoring, etc. to allow for unrestricted traffic.
E	Open, temporary structure in place to carry legal loads while original structure is closed and awaiting replacement or rehabilitation.
G	New structures not yet open to traffic.
K	Bridge closed to all traffic.
P	Posted for load (may include other restrictions).
R	Posted for other load capacity restriction (speed, number of vehicles on bridge, etc.).

ITEM 42 - TYPE SERVICE **2 DIGIT FIELD**

This item is intended to show the type of service on the bridge and the type of service under the bridge. The service types for this item will be indicated by a two-digit code composed of 2 segments.

Segment	Description	Length
42A	Type of service on bridge	1 digit
42B	Type of service under bridge	1 digit

The first digit indicates the type of service "on" the bridge and shall be coded using one of the following codes:

Code	Description
1	Highway
2	Railroad
3	Pedestrian - bicycle
4	Highway-Railroad
5	Highway-Pedestrian
6	Overpass structure at an interchange or second level of a multilevel interchange
7	Third level (Interchange)
8	Fourth Level (Interchange)
9	Building or Plaza
0	Other

The second digit indicates the type of service "under" the bridge and shall be coded using one of the following codes:

Code	Description
1	Highway, with or without pedestrian
2	Railroad
3	Pedestrian - bicycle
4	Highway-Railroad
5	Waterway
6	Highway-Waterway
7	Railroad-Waterway
8	Highway-Waterway-Railroad
9	Relief for waterway
0	Other

ITEM 43 - STRUCTURE TYPE, MAIN **3 DIGIT FIELD**

Record the description on the inspection form and indicate the type of structure for the main span(s) with a 3-digit code composed of 2 segments.

Segment	Description	Length
43A	Kind of material and/or design	1 digit
43B	Type of design and/or construction	2 digits

The first digit indicates the kind of material and/or design and shall be coded using one of the following codes:

Code	Description
1	Concrete
2	Concrete continuous
3	Steel
4	Steel continuous
5	Prestressed concrete *
6	Prestressed concrete continuous *
7	Timber
8	Masonry
9	Aluminum, Wrought Iron, or Cast Iron
0	Other

* Post-tensioned concrete should be coded as prestressed concrete.

The second and third digits indicate the predominant type of design and/or type of construction and shall be coded using one of the following codes:

Code	Description
01	Slab
02	Stringer/Multi-beam or Girder
03	Girder and Floorbeam System
04	Tee beam
05	Box Beam or Girders - Multiple
06	Box Beam or Girders - Single or Spread
07	Frame
08	Orthotropic
09	Truss - Deck
10	Truss - Thru
11	Arch - Deck
12	Arch - Thru
13	Suspension
14	Stayed Girder
15	Movable - Lift
16	Movable - Bascule
17	Movable - Swing
18	Tunnel
19	Culvert
20 *	Mixed Types
21	Segmental Box Girder
22	Channel Beam
00	Other

* Applicable only to approach spans - Item 44

(continued)

ITEM 43 - STRUCTURE TYPE, MAIN (cont'd)

EXAMPLES: Type	Code
Timber Through Truss	710
Masonry Culvert	819
Steel Suspension	313
Continuous Concrete Multiple Box Girders	205
Simple Span Concrete Slab	101
Tunnel in Rock	018

NOTES:

Arches, frames, and suspension bridges are coded for material only, they are never coded as "continuous".

Unidentified metal bridges (iron or steel) constructed prior to 1905 are coded as iron.

02 includes multi girder systems.

03 applies to two-girder systems.

05 applies to adjacent boxes.

10 includes pony trusses.

ITEM 44 - STRUCTURE TYPE, APPROACH SPANS **3 DIGIT FIELD**

Indicate with a three-digit code composed of 2 segments, the type of structure for the approach spans to a major bridge or for the approach spans where the structural material is different. The codes are the same as for Item 43 preceding. However, code 000 if this item is not applicable. If the kind of material is varied, code the most predominant in segment 44A. Use code 20 for segment 44B when no one type of design and/or construction is predominate in the approach units. Identical codes for Items 43 and 44 are not permitted.

Segment	Description	Length
44A	Kind of material and/or design	1 digit
44B	Type of design and/or construction	2 digits

EXAMPLES:

Simple prestressed concrete I-beam	502
Continuous concrete T-beam	204
Continuous steel deck truss	409
Simple precast concrete multi-beam	102

ITEM 45 - NUMBER OF SPANS IN MAIN UNIT **3 DIGIT FIELD**

Record the number and indicate with a 3-digit code the number of spans in the main or major unit. This item will include all spans of most bridges, the major unit only of a sizable structure, or a unit of material or design different from that of the approach spans.

ITEM 46 - NUMBER OF APPROACH SPANS **4 DIGIT FIELD**

Record the number and indicate with a 4-digit code the number of spans in the approach spans to the major bridge, or the number of spans of material different from that of the major bridge.

ITEM 47 - INVENTORY ROUTE, TOTAL HORIZONTAL CLEARANCE (XX.X FT) **3 DIGIT FIELD**

The total horizontal clearance for the route identified in Item 5 should be measured normal to roadway centerline. The clearance should be the available distance measured between the most restrictive features--curbs, rails, walls, or other structural features limiting the roadway (surface and shoulders). The measurement should be a three-digit number truncated to the nearest tenth of a foot with an assumed decimal point. The decimal has been pre-coded into the computer program. When the restriction is 100 feet or greater, code 999. This distance can be equal to, but shall not be greater than the dimension shown in Item 51.

The purpose of this item is to give the largest available clearance for the movement of wide loads. This clearance has been identified in three ways; code the most applicable.

A. Roadway surface and shoulders.

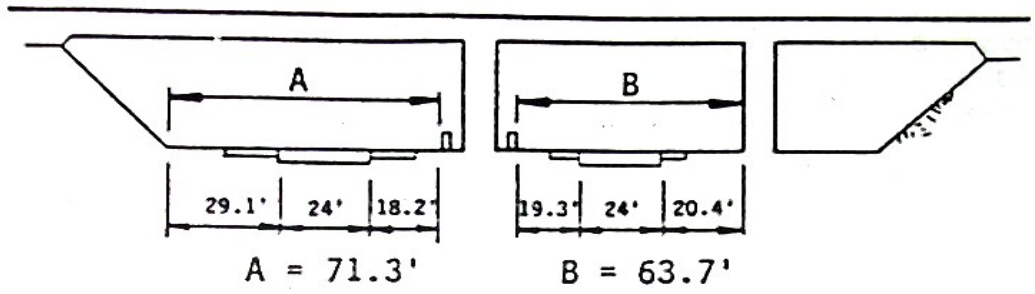
B. Distance from face of pier (or rail around pier) to face of rail or toe of slope.

C. Include flush or mountable medians (Item 33 - Bridge Median coded 2) but not raised medians (Item 33 coded 3). For a raised or non-mountable median record the greater of the restricted widths in either direction, not both directions.

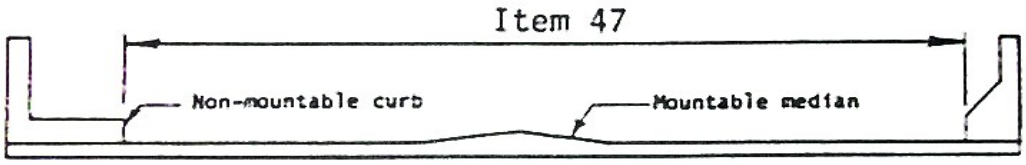
Examples: Continued on the next page.

(continued)

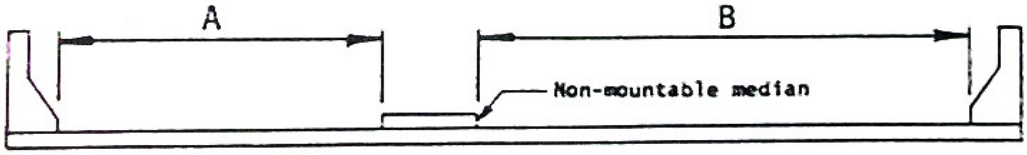
ITEM 47 - INVENTORY ROUTE, TOTAL (cont'd) **3 DIGIT FIELD**
HORIZONTAL CLEARANCE (XX.X FT)



Clearance A > B Item 47 = A



No Median or Flush or Mountable Median



Raised Median or Non-mountable Median
B > A Item 47 = B

ITEM 48 – LENGTH OF MAXIMUM SPAN (XXXX.X ft) **5 DIGIT FIELD**

The length of the maximum span shall be recorded. The measurement should be as specified in Section 3.2.2 of the AASHTO Bridge Maintenance Manual. The manual allows measurements to be made at two different points to the tenth of a foot. For this item, record and code a five-digit number to represent the measurement to the nearest tenth of a foot between center to center of bearings, or clear span of the walls of stiff leg culverts. The sum of all spans cannot be greater than the structure length coded in Item 49.

EXAMPLES:	Measured	Code
	50.49 feet	0050.5
	1,050.53 feet	1050.5
	45.71 feet	0045.7

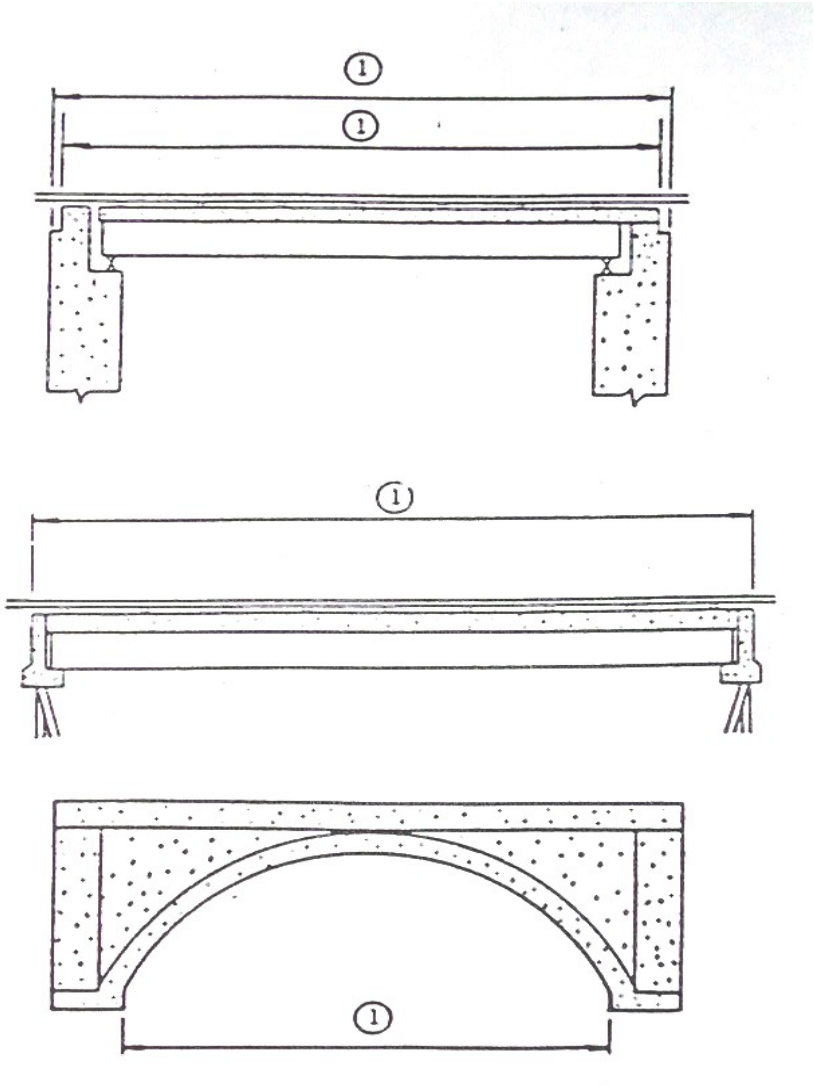
ITEM 49 – STRUCTURE LENGTH (XXXXXX ft) **6 DIGIT FIELD**

Record and code a 6-digit number to represent the length measured along centerline of the structure to the nearest foot. The length should be measured back to back of back-walls of abutments as specified in Section 3.2.2 of the AASHTO Bridge Maintenance Manual.

Culvert length should be measured along the centerline of roadway regardless of their depth below grade. Measurement should be made between inside faces of exterior walls.

EXAMPLES:

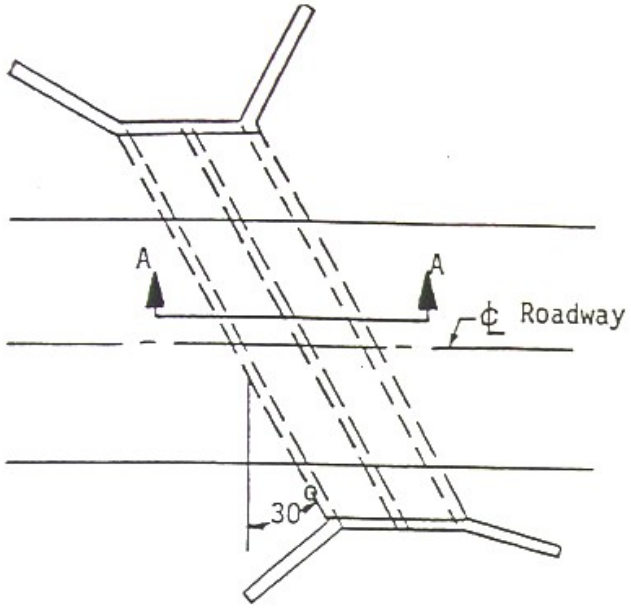
Measured	Code
5,421.3 feet	005421
333.5 feet	000334
101,235.7 feet	101236

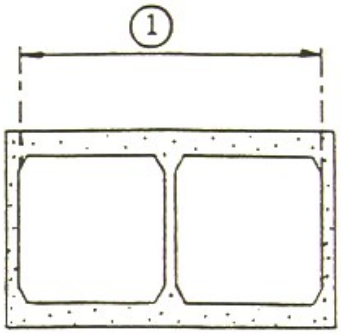


(1) Item 49 - Structure Length

(continued)

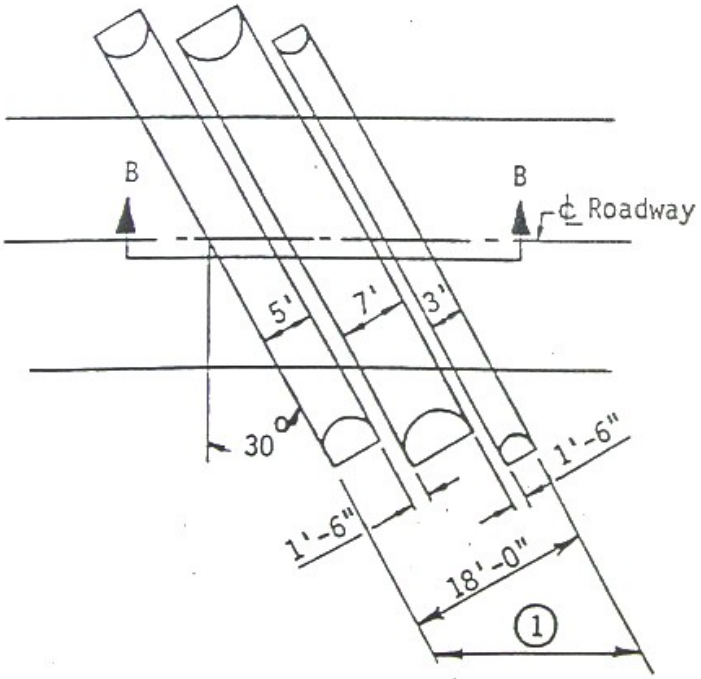
ITEM 49 – STRUCTURE LENGTH (cont'd) **6 DIGIT FIELD**

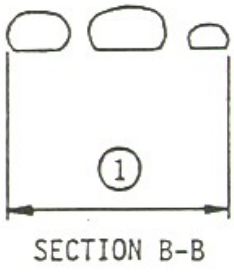




SECTION A-A

(1) Item 49 - Structure Length





SECTION B-B

(1) Item 49 - Structure Length = $\frac{18'}{\cos 30°}$ = 20.78' Code 000021

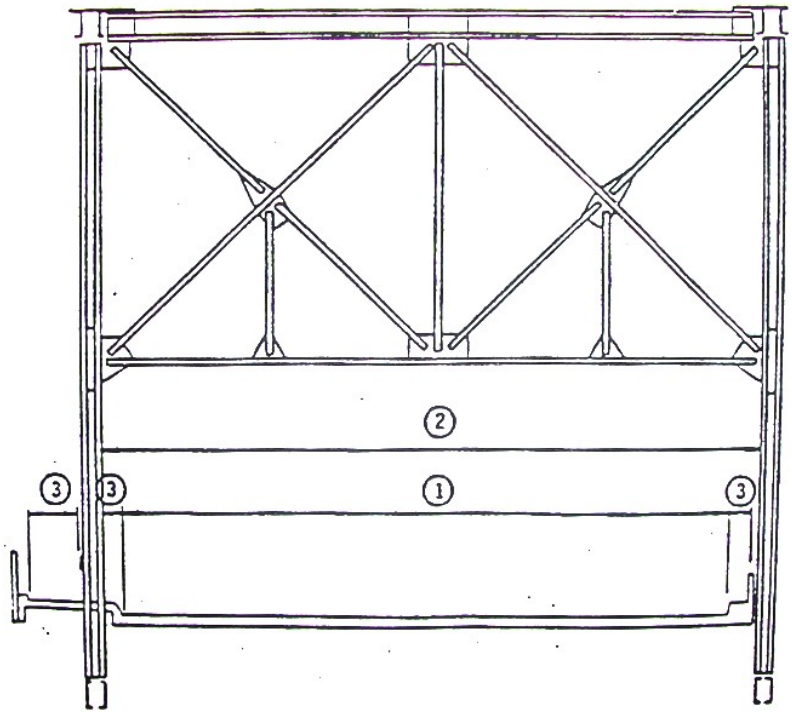
ITEM 50 - CURB OR SIDEWALK WIDTHS **6 DIGIT FIELD**
(XX.X ft, XX.X ft)

Record and code two contiguous 3-digit numbers to represent the widths of the left and right curbs or sidewalks to the nearest tenth of a foot. This is a 6-digit number composed of 2 segments, with the left three digits representing the left curb or sidewalk, and the right three digits representing the right curb or sidewalk. "Left" and "Right" should be determined on the basis of direction of inventory mileposts. Decimal points need to be coded.

Segment	Description	Length
50A	Left curb or sidewalk width	3 digits
50B	Right curb or sidewalk width	3 digits

EXAMPLES:

Left Side	Right Side	Code Item 50 Left	Code Item 50 Right
None	8.3’	000	08.3
10.0’	4.1’	10.0	04.1
8.3’	None	08.3	000
12.1’	11.5’	12.1	11.5
None	None	000	000

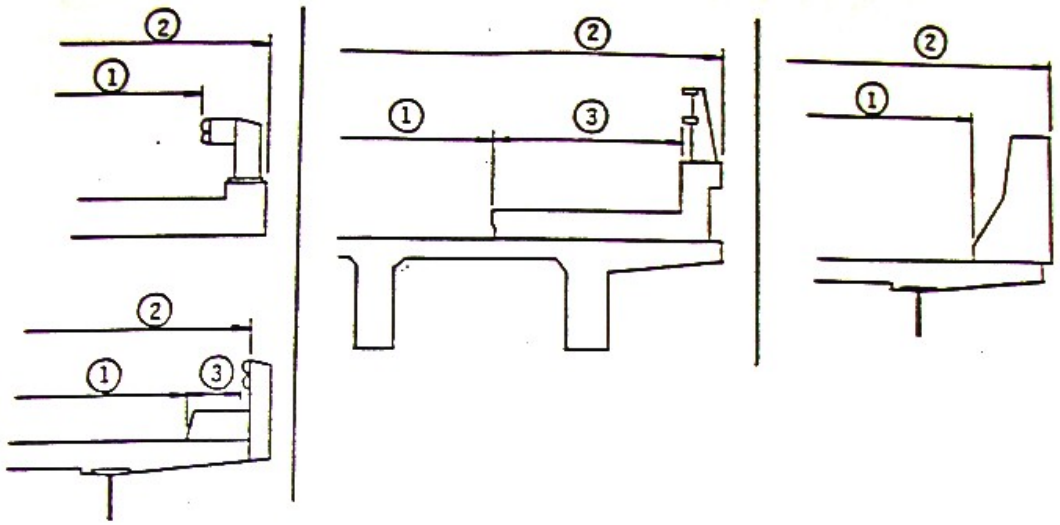


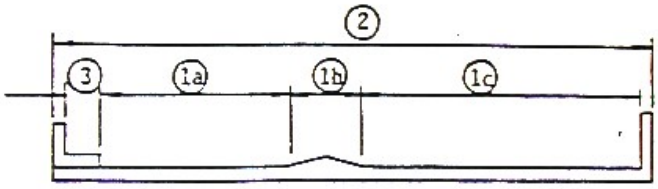
1. Item 51 - Bridge Roadway Width, Curb-to-Curb
2. Item 52 - Deck Width, Out-to-Out
3. Item 50 - Curb or Sidewalk Width

(continued)

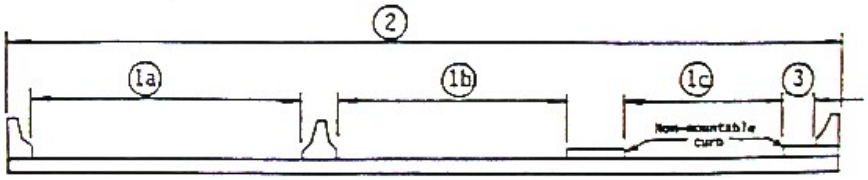
ITEM 50 - CURB OR SIDEWALK WIDTHS (cont'd)

EXAMPLES:

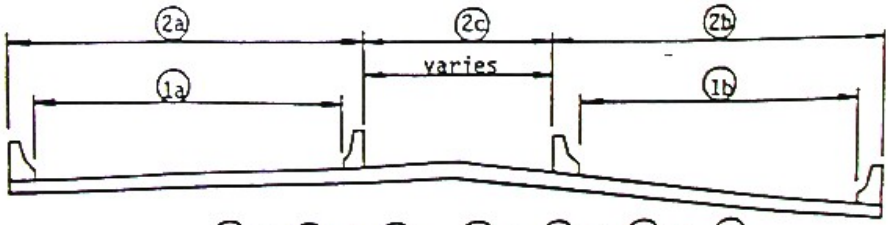




1 = 1a + 1b + 1c



1 = 1a + 1b + 1c



1 = 1a + 1b 2 = 2a + 2b + 2c

(1) Item 51 - Bridge Roadway Width, Curb-to-Curb
(2) Item 52 - Deck Width, Out-to-Out
(3) Item 50 - Curb or Sidewalk Width

ITEM 51 - BRIDGE ROADWAY WIDTH, CURB TO CURB (XXX.X ft) **4 DIGIT FIELD**

The information to be recorded is the most restrictive minimum distance between curbs or rails on the structure roadway. For structures with closed medians and usually for double decked structures, coded data will be the sum of the most restrictive minimum distance for all roadways carried by the structure *. The data recorded for this item must be compatible with other related route and bridge data (i.e., Items 28, 29, 32 etc.). The measurement should be exclusive of flared areas for ramps. A 4-digit number should be used to represent the distance to the nearest tenth of a foot (with an added decimal point). See examples under Item 50.

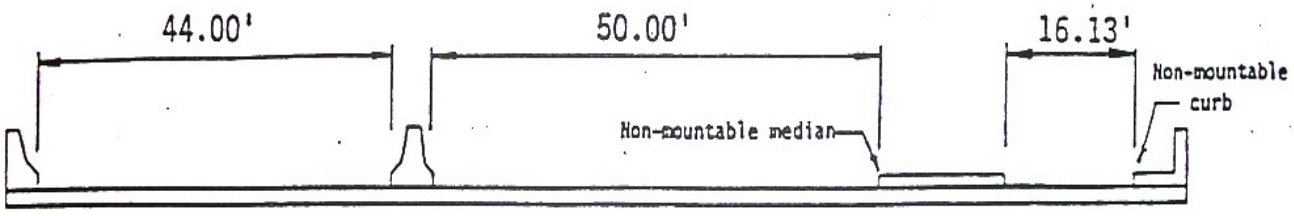
Where traffic runs directly on the top slab (or wearing surface) of a culvert type structure, e.g. an R/C box without fill, code the actual roadway width (curb-to-curb or rail-to-rail). This will also apply where the fill is minimal and headwalls or parapets affect the flow of traffic.

Where the roadway is on fill carried across a structure (culverts only) and the headwalls or parapets do not affect the flow of traffic, code 0000. This is considered proper since a filled section simply maintains the roadway cross-section.

* Raised or non-mountable medians, open medians, and barrier widths are to be excluded from the summation along with barrier protected bicycle and equestrian lanes.

EXAMPLE:	Bridge Roadway Width	Code
	36.0’ wide	036.0
	66.37’ wide	066.4
	110.13’ wide	110.1

The last example above would be the coded value for the deck section shown below.



ITEM 52 - DECK WIDTH, OUT TO OUT (XXX.X ft) **4 DIGIT FIELD**

Record and code a 4-digit number to show the out-to-out width of the deck to the nearest tenth of a foot (with an added decimal point) measured normal to roadway centerline. If the structure is a through structure, the number to be coded will represent the lateral clearance between superstructure members. The measurement should be exclusive of flared areas for ramps. See examples under Item 50.

Where traffic runs directly on the top slab (or wearing surface) of the culvert (e.g., and R/C box without fill) code the actual width (out-to-out). This will also apply where the fill is minimal and the culvert headwalls affect the flow of traffic. However, for side-hill viaduct structures code the actual out-to-out structure width.

Where the roadway is on a fill carried across a pipe or box culvert and the culvert headwalls or guard rails do not affect the flow of traffic, code 0000. This is considered proper inasmuch as a filled section over a culvert simply maintains the roadway cross-section.

ITEM 53 - MINIMUM VERTICAL CLEARANCE OVER BRIDGE ROADWAY (XX.XX ft) **4 DIGIT FIELD**

The information to be recorded for this item is the actual minimum vertical clearance over the bridge roadway, including shoulders, to any superstructure restriction, rounded down to the nearest inch. When no superstructure restriction exists above the bridge roadway, the clearance is therefore unlimited and should be coded 99.99. When a restriction is 100 feet or greater, code 99.99. A four-digit number should be coded to represent feet and hundredths of feet.

EXAMPLES:	Min. Vertical Clearance	Code
	16' – 1 1/2"	16.13
	75' - 11"	75.92
	115' - 6"	99.99
	Unlimited	99.99

ITEM 54 - MINIMUM VERTICAL UNDERCLEARANCE (X Code, XX.XX ft) **5 DIGIT FIELD**

Using a 1-digit code and a 4-digit number, record and code the minimum vertical clearance from the roadway or railroad track beneath the structure to the underside of the superstructure. (When both a railroad and highway are under the structure, code the most critical dimension.)

Segment	Description	Length
54A	Reference feature	1 digit
54B	Minimum Vertical Underclearance	4 digits

(continued)

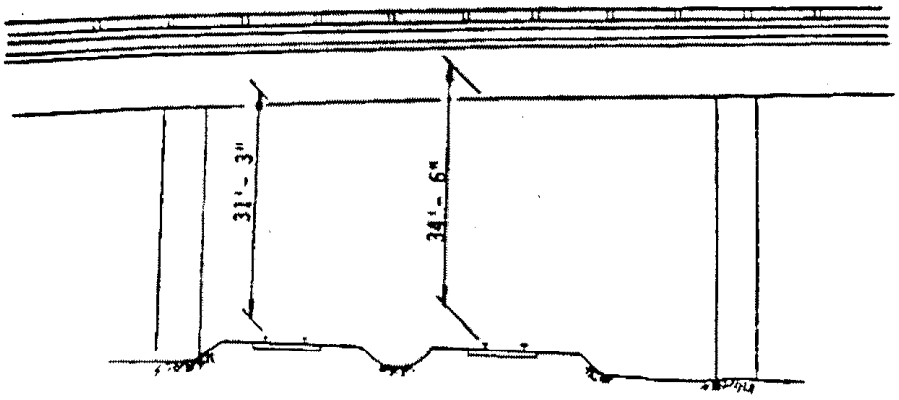
ITEM 54 - MINIMUM VERTICAL UNDERCLEARANCE (cont'd)

In the first position, code the reference feature from which the clearance measurement is taken using one of the codes below.

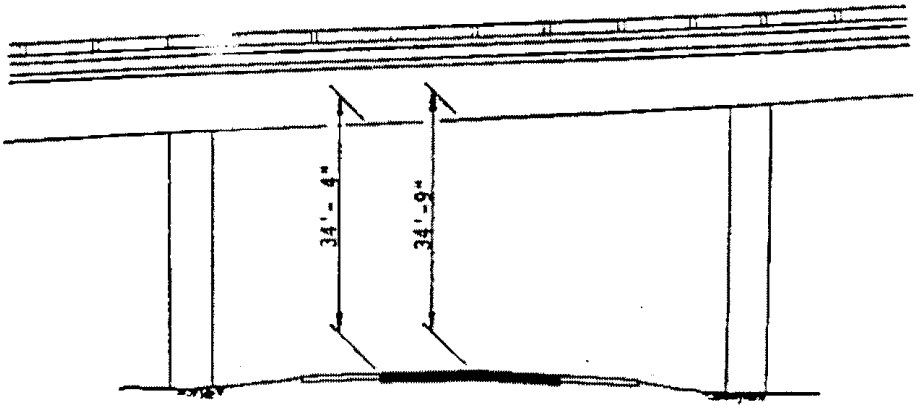
Code	Description
H	Highway beneath structure
R	Railroad beneath structure
N	Feature not highway or railroad

In the next 4 positions, code a 4-digit number to represent the minimum vertical clearance from that feature to the structure. If the feature is not a highway or railroad, code the minimum vertical clearance 0000.

EXAMPLES:	Code
River beneath structure	N0000



Railroad 31'-3" beneath structure R31.25



Highway 34'-4" beneath structure H34.33

ITEM 55 - MINIMUM LATERAL UNDERCLEARANCE ON RIGHT (X Code, XX.X ft) **4 DIGIT FIELD**

Using a 1-digit code and a 3-digit number, record and code the minimum lateral underclearance on the right to the nearest tenth of a foot (with an added decimal point). When both a railroad and highway are under the structure, code the most critical dimension.

Segment	Description	Length
55A	Reference feature	1 digit
55B	Minimum Lateral Underclearance	3 digits

In the first position, code the reference feature from which the clearance measurement is taken using one of the codes below.

Code	Description
H	Highway beneath structure
R	Railroad beneath structure
N	Feature not a highway or railroad

In the next 3 positions, code a 3-digit number to represent the minimum lateral underclearance on the right. The lateral clearance should be measured from the right edge of the roadway, excluding shoulders, (or from a point centered between rails of the right-hand track in the case of a railroad) to the nearest, substructure unit, rigid barrier, or toe of a slope steeper than 3 to 1. The clearance measurements to be recorded will be the minimum after measuring the clearance in both directions of travel. In the case of a dual highway this would mean the outside clearances of both roadways should be measured and the smaller distance recorded and coded.

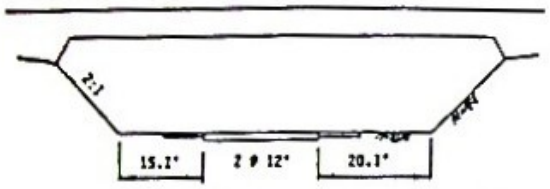
If two related features are below the bridge, measure both and record the lesser of the two. An explanation should be written as to what was recorded. If the feature beneath the structure is not a railroad or highway, code N000 to indicate not applicable.

The presence of ramps is not considered in this item; therefore, the minimum lateral clearance on the right should be measured from the right edge of the through roadway.

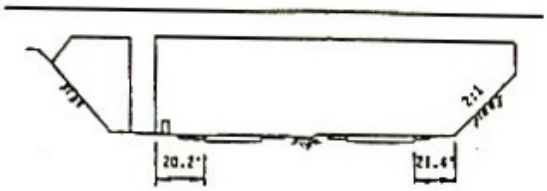
EXAMPLES:	Code
Railroad 20.4’ centerline to pier	R20.4
Highway 20.2’ edge of travel way to pier	H20.2
Creek beneath structure	N000

(continued)

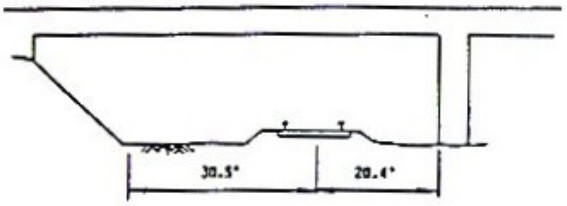
ITEM 55 - MINIMUM LATERAL UNDERCLEARANCE ON RIGHT (cont'd)



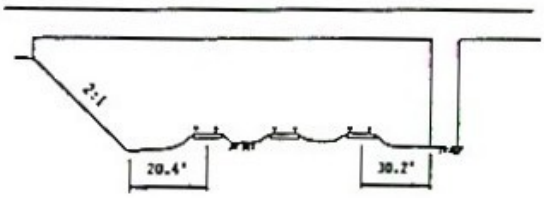
-- Lt. 15.1'Rt. for 2-way Traffic
15.1'Lt. 20.1'Rt. for 1-way Traffic



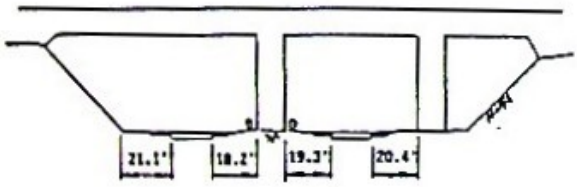
OPEN Lt. 20.2'Rt.



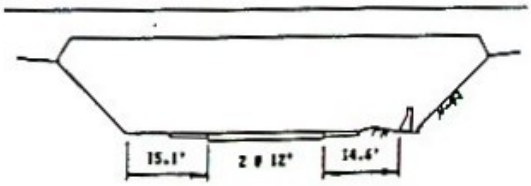
-- Lt. 20.4'Rt.



-- Lt. 20.4'Rt.



18.2'Lt. 20.4'Rt.



-- Lt. 14.6'Rt. for 2-way Traffic
15.1'Lt. 14.6'Rt. for 1-way Traffic

ITEM 56 - MINIMUM LATERAL UNDERCLEARANCE ON LEFT (XX.X ft) **3 DIGIT FIELD**
(for divided highways, 1 way streets & ramps; not applicable to railroads)

The minimum clearance on the left (median side) of the roadway beneath the structure regardless of the direction of travel is to be recorded. As was explained in Item 55, the clearance on the left in both directions of travel should be measured and the smaller distance recorded. The clearance is to be measured from left edge of roadway (excluding shoulders) to the nearest substructure unit, rigid barrier, or toe of slope steeper than 3 to 1.

In the case of a dual highway where there is no obstruction in the median area, a notation of "open" should be recorded and 999 should be coded. A 3-digit code to represent the distance to the nearest tenth of a foot should be used (with an added decimal point). Code 000 to indicate not applicable.

ITEM 57 – NOT USED

CONDITION RATINGS

Items 58 through 62 indicate the condition ratings.

In order to promote uniformity between bridge inspectors, these guidelines will be used to rate and code Items 58, 59, 60, 61 and 62. The descriptive codes below are general. More specific guidelines are provided for each condition item to be rated.

These ratings will be based on the existing in-place condition of the bridge as compared to its as-built condition. Evaluation is for the materials related, physical condition of the deck, superstructure, and substructure components of a bridge. The condition evaluations of channels, channel protection and culverts are also included. Condition codes are properly used when they provide an over all characterization of the general condition of the entire component being rated. Conversely, they are improperly used if they attempt to describe localized or nominally occurring instances of deterioration or disrepair. Correct assignment of a condition code must, therefore, consider both the severity of the deterioration or disrepair and the extent to which it is widespread throughout the component being rated.

The load carrying capacity will not be used in evaluating condition items. The fact that a bridge was designed for less than current legal loads and may be posted shall have no influence upon condition ratings.

The determination of which code applies to each of the items will be based on evaluation of all relevant factors and information. It is not necessary that all listed conditions under a numerical rating be observed in order for that code to be used. It is recognized that there are unique situations where judgment will be required.

Portions of bridges that are being supported or strengthened by temporary members will be rated based on their actual condition; that is, the temporary members are not considered in the rating of the item. (See Item 103 - Temporary Structure Designation for the definition of a temporary bridge).

Completed bridges not yet opened to traffic, if rated, shall be coded as new bridges open to traffic.

(continued)

CONDITION RATINGS (cont'd)

The following general condition ratings shall be used as a guide in evaluating Item 58, 59, 60, and 62:

Code	Description
N	NOT APPLICABLE
9	EXCELLENT CONDITION
8	VERY GOOD CONDITION - no problems noted.
7	GOOD CONDITION - Minor problems.
6	SATISFACTORY CONDITION - structural elements show minor deterioration.
5	FAIR CONDITION - all primary structural elements are sound but may have minor section loss, cracking, spalling or scour.
4	POOR CONDITION - advanced section loss, deterioration, spalling or scour.
3	SERIOUS CONDITION - loss of section, deterioration, spalling or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
2	CRITICAL CONDITION - advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the bridge until corrective action is taken.
1	"IMMINENT" FAILURE CONDITION - major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put back in light service.
0	FAILED CONDITION - out of service - beyond corrective action.

ITEM 58 - DECK **1 DIGIT FIELD**

This item describes the overall condition rating of the deck. Rate and code the condition of the deck in accordance with the above general condition ratings along with the guides provided under this item. Code N for all culverts.

Concrete decks should be inspected for cracking, scaling, spalling, leaching, chloride contamination, pot-holing, delamination, and full or partial depth failures. Steel grid decks should be inspected for broken welds, broken grids, section loss, and growth of filled grids from corrosion. Timber decks should be inspected for splitting, crushing, fastener failure, and deterioration from rot.

When determining the code for Item 58, the condition of the deck on the worst span of the bridge shall be indicated. The condition of the wearing surface/protective system, joints, expansion devices, curbs sidewalks, parapets, fascias, bridge rail, and scuppers shall not be considered in the overall deck evaluation. However their condition should be noted in the commentary portion of the inspection form.

Decks integral with the superstructure will be rated as a deck only and not how they may influence the superstructure rating (for example; rigid frame, slab, deck-girder or T-beam, voided slab, box girder, etc.). Similarly, the superstructure of an integral deck-type bridge will not influence the deck rating.

The following descriptive codes should be used as a guide in evaluating the deck condition for specific deck types.

CONCRETE BRIDGE DECKS

- - - - - - - - - - - - - - - - - - - -

Code	Description
N	Use for all culverts.
9	New structure, two years or less in age, with no noticeable deficiencies.
8	Structure older than two years of age with no noticeable deficiencies.
7	Minor transverse or random cracks with light scaling (less than 1/4" depth with exposed aggregate). No spalling but has visible tire wear in the wheel lines. Electrical potential less than 0.20 or chloride content less than 1.0 pounds per cubic yard.
6	Sealable deck cracks. Medium scaling (1/4" to 1/2" in depth), 2% or less of the deck spalled. Minor deterioration of deck edges or around scuppers. Minor leaching and/or staining present. Electrical potential between 0.21 and 0.25 or chloride content between 1.1 and 1.5 pounds per cubic yard.

(continued)

ITEM 58 - DECK (cont'd)

Code	Description
5	Excessive cracking (excessive being at 5-foot intervals or less over the entire deck). 2% to 5% of the deck spalled. Heavy scaling (1/2" to 1" in depth). Heavy deterioration of deck edges or around scuppers. Considerable leaching and/or staining through deck. Partial but no full depth failures. Electrical potential between 0.26 and 0.30 or chloride content between 1.6 and 2.0 pounds per cubic yard.
4	5% to 50% of the deck spalled. Heavy leaching throughout the deck. Full depth failures are imminent. Electrical potential over 0.30 or chloride content over 2.0 pounds per cubic yard.
3	Greater than 50% of deck spalled. Small full depth failures. This rating will apply if severe or critical signs of structural distress are visible.
2	Full depth failures in deck. Closure of the bridge may be necessary.
1	Bridge closed. Corrective action may put bridge back into light service.
0	Bridge closed. Replacement necessary.

TIMBER BRIDGE DECKS

- - - - - - - - - - - - - - - - - -

Code	Description
N	Use for all culverts
9	New structure, two years or less in age with no noticeable deficiencies.
8	Structure older than two years of age with no noticeable deficiencies. Tightly secured to floor system.
7	Minor cracking or splitting. No loose planks or laminations.
6	Planking or laminated decking has light rot or crushing. A few loose planks. Planks or laminated decking in need of replacement.
5	A number of planks or laminated decking cracked, split, rotted, or crushed and in need of replacement. Many loose planks or laminations.
4	Numerous planks or laminated decking rotted, split, cracked, or crushed. Majority of planks or laminations are loose.
3	Majority of planking or laminated deck is rotted, crushed and/or split. The entire deck needs replaced.

(continued)

ITEM 58 - DECK (cont'd)

Code	Description
2	Extreme deterioration with partial deck failure. Closure of bridge may be necessary.
1	Bridge closed. Corrective action may put bridge back into light service.
0	Bridge closed. Replacement necessary.

STEEL BRIDGE DECKS

Code	Description
N	Use for all culverts.
9	New structure, two years or less in age with no noticeable deficiencies.
8	Structure older than two years of age with no noticeable deficiencies. Tightly secured to floor system with no rust or cracking.
7	Loose at a few connections with minor rusting.
6	Considerable rusting. A few cracked welds and/or broken grids.
5	Heavy rusting with indications of initial section loss. A few cracked welds and/or broken grids.
4	Heavy rusting with areas of moderate section loss. Numerous cracked welds and/or broken grids.
3	Heavy rusting resulting in considerable section loss with a few small holes through the deck.
2	Numerous small holes through the deck. Extreme section loss. Closure of the bridge may be necessary.
1	Bridge closed. Corrective action may put bridge back into light service.
0	Bridge closed. Replacement necessary.

ITEM 59 - SUPERSTRUCTURE **1 DIGIT FIELD**

This item describes the physical condition of all structural members. Rate and code the condition in accordance with the previously described general condition ratings along with the guide provided under this item. Code N for all culverts.

The structural members should be inspected for signs of distress which may include cracking, deterioration, section loss, and malfunction or misalignment of bearings. Descriptions of superstructure member conditions shall be provided in the commentary portion of the inspection report.

The inspector should determine if the bridge is fracture critical or has fracture critical components. Fracture critical components should receive careful attention because failure could lead to collapse of a span or the entire bridge. In-depth inspections should be scheduled when signs of distress are noted and in some cases partial disassembly may be required to ascertain the condition.

For bridges where the deck is integral with the superstructure, the superstructure condition rating may be affected by the deck condition. In those cases, the superstructure rating should not be higher than the deck rating. However, it may be lower than the deck rating if the condition of structural members warrant.
Comprehensive rehabilitation of the superstructure will normally restore the superstructure to a rating of 8.

CONCRETE SUPERSTRUCTURES

Code	Description
N	Use for all culverts.
9	New structure, two years or less in age with no noticeable deficiencies.
8	Structure older than two years of age with no noticeable deficiencies. No visible cracking.
7	Minimal hairline cracks with no disintegration of concrete. No staining present.
6	Minor hairline to 1/16" cracks with no disintegration of concrete. Minor staining around the cracks. No spalling.
5	Moderate 1/16" to 1/8" cracks in concrete. Surface spalling up to 1/8". Heavy staining present.
4	Larger than 1/8" cracks in concrete. Spalling is beginning to expose reinforcing steel.

(continued)

ITEM 59 - SUPERSTRUCTURE (cont'd)

3 Serious disintegration of concrete. Many open cracks may be present. Reinforcing steel is exposed and rusting.

2 Concrete disintegrated on critical members. Reinforcing steel severely corroded. Bridge closure may be necessary.

1 Bridge closed. Corrective action may put bridge back into light service.

0 Bridge closed. Replacement necessary.

STEEL SUPERSTRUCTURES

Code	Description
N	Use for all culverts.
9	New structure, two years or less in age with no noticeable deficiencies.
8	Structure older than two years of age with no noticeable deficiencies. No visible rust.
7	Minor surface rust. No cracks or section loss.
6	Heavy surface rust. Hinges may be showing signs of corrosion problems. Random loose or missing bolts and/or rivets.
5	Initial section loss in critical stress areas. Fatigue or out-of-plane-bending cracks may be present in non-critical areas. Minor misalignment of members. Hinges may be showing significant corrosion problems.
4	Significant section loss in critical stress areas. Minor fatigue or out-of-plane-bending cracks may be present in major structural elements.
3	Serious section loss or major cracks in critical stress areas. Numerous lose or missing bolts and/or rivets. Excessive misalignment of members. Hinges may be frozen from corrosion.
2	Severe section loss in many areas with holes rusted through major structural members. Critical cracks in major structural elements. Bridge closure may be necessary.
1	Bridge closed. Corrective action may put bridge back into light service.
0	Bridge closed. Replacement necessary.

TIMBER SUPERSTRUCTURES

- - - - - - - - - - - - - - - - - - - -

Code	Description
N	Use for all culverts.
9	New structure, two years or less in age with no noticeable deficiencies.
8	Structure older than two years of age with no noticeable deficiencies.
7	Minor cracking or splitting of beams and/or stringers at insignificant locations.
6	Minor decay, cracking, splitting, or crushing of beams and/or stringers.
5	Moderate decay, cracking, splitting, or crushing of beams and/or stringers.
4	Substantial decay, cracking, splitting, or crushing of beams and/or stringers.
3	Extensive decay, cracking, splitting, or crushing of beams and/or stringers.
2	Imminent failure of beams and/or stringers. Serious cracking, crushing, splitting or decay of beams or stringers may have caused settlement of deck. Bridge closure may be necessary.
1	Bridge closed. Corrective action may put bridge back into light service.
0	Bridge closed. Replacement necessary.

ITEM 60 - SUBSTRUCTURE **1 DIGIT FIELD**

This item describes the physical condition of piers, abutments, piles, fenders, footings, and other substructure components. All substructure elements should be inspected for visible signs of distress including evidence of cracking, section loss, settlement, misalignment, scour, collision damage, and corrosion.

The rating given by Item 113 - Scour Critical Bridges, may have a significant effect on Item 60 if scour has substantially affected the overall condition of the substructure.

The substructure condition rating shall be made independent of the deck and superstructure. When determining the condition rating for the substructure, the condition of the worst substructure unit shall be indicated in Item 60. Code N for all culverts.

(continued)

ITEM 60 – SUBSTRUCTURE **1 DIGIT FIELD**

This item describes the physical condition of piers, abutments, piles, fenders, footings, or other components. All substructure elements should be inspected for visible signs of distress including evidence of cracking, section loss, settlement, misalignment, scour, collision damage, and corrosion. The rating factor given to Item 60 should be consistent with the one given to Item 113 whenever a rating factor of 2 or below is determined for Item 113 – Scour Critical Bridges.

The substructure condition rating shall be made independent of the deck and superstructure.

Integral-abutment wingwalls to the first construction or expansion joint shall be included in the evaluation. For non-integral superstructure and substructure units, the substructure shall be considered as the portion below the bearings. For structures where the substructure and superstructure are integral, the substructure shall be considered as the portion below the superstructure.

Comprehensive rehabilitation of the substructure units will normally restore the substructure condition to a least a rating of 7.

Rate and code the substructure condition in accordance with the previously described general condition rating along with the following additional descriptive codes (which shall be used as guide in evaluating the substructure condition).

Code Description
N Use for all culverts.

9 New structure, two years or less in age with no noticeable deficiencies.

8 Structure older than two years of age with no noticeable deficiencies. Insignificant scrape marks caused by drift of collision.

7 Minor shrinkage cracks, H/L to 1/32" light scaling, or insignificant spalling which does not expose reinforcing steel. Insignificant damage caused by drift or collision. No misalignment. No corrective action required.

6 Deterioration or initial disintegration, minor to moderate cracking (1/32" to 1/16") with leaching, or spalls on concrete or masonry unit with no effect on bearing area. Rusting of steel without section loss. Insignificant decay, cracking, splitting, or crushing of timber. Local scouring has occurred near substructure footing without misalignment.

5 Moderate deterioration, spalling, cracking (1/16" +), and/or leaching on concrete or masonry units with little or no loss of bearing area. Initial loss of steel section. Significant decay, cracking, splitting, or crushing of timber. A few timber members may need replacement. Moderate exposure of pile as a result of erosion, reducing the penetration and affecting the unit stability. May require additional cross-bracing. Scour is becoming more prominent with a possibility of exposing top of footing, but no misalignment of settlement noted.

(continued)

ITEM 60 - SUBSTRUCTURE (cont'd)

Code	Description
4	Many concrete or masonry units show substantial loss with exposed reinforcing steel. Measurable section loss in steel members. A substantial number of timber piles require replacement (up to 25% of piles need replaced in any one bent or abutment). Extensive exposure of pile as a result of erosion, reducing the penetration and affecting the stability of the unit. Minor scouring or undermining of footing evident. Additional cross-bracing or back-filling is required.
3	Structural cracks in concrete and masonry units. Extensive section loss in steel members. Piling and caps in a substantial number of timber bents require replacement due to decay, cracking, splitting, or crushing. Between 26% and 50% of the piles need replaced in any one bent or abutment. Severe scouring or undermining of footings affecting the stability of the units, requiring corrective action. Minor settlement of the substructure may have occurred.
2	Bearing areas seriously deteriorated with considerable loss of bearing area. More than 50% of piles need replaced in any one bent or abutment. Blocking and shoring considered necessary to maintain the safety and alignment of the structure. Substructure is near state of collapse due to scour. Unless closely monitored it may be necessary to close the bridge until corrective action is taken.
1	Bridge closed. Correction action may put bridge back into light service.
0	Bridge closed. Replacement necessary.

ITEM 61 - CHANNEL AND CHANNEL PROTECTION **1 DIGIT FIELD**

This item deals with the physical conditions associated with the flow of water through the bridge. Stream stability, condition of the channel, rip-rap, slope protection and stream control devices (such as spur dikes) are included in the evaluation. The inspector should be particularly concerned with visible signs of excessive water velocity, which may affect undermining of slope protection or footings, erosion of banks, and realignment of the stream which may result in immediate or potential problems. Accumulation of drift and debris on the superstructure and substructure should be noted.

Rate and code the condition of the channel in accordance with the previously described general condition ratings and the following descriptive codes:

Code	Description
N	Not applicable. Use when bridge is not over a waterway.
9	No noticeable or noteworthy deficiencies which affect the condition of the channel.

(continued)

ITEM 61 - CHANNEL AND CHANNEL PROTECTION (cont'd)

Code	Description
8	Banks are protected or well vegetated. River control devices such as spur dikes and embankment protection are not required or are in stable condition.
7	Bank protection is in need of minor repairs. River control devices and embankment protection have minor damage. Banks and/or channel have minor amounts of drift. Minor local scour developing near substructure.
6	Bank is beginning to slump. River control devices and embankment protection have widespread minor damage. There is minor stream bed movement evident. Debris is restricting the waterway slightly. Scour holes deepening.
5	Bank protection is being eroded. River control devices and/or embankment have major damage. Trees and brush restrict the channel. Scour holes are becoming more prominent, affecting the stability of the substructure.
4	Bank and embankment protection undermined with corrective action required. River control devices have severe damage. Large deposits of debris in the waterway.
3	Bank protection has failed completely. River control devices have been destroyed. Stream bed aggradation, degradation or lateral movement has changed the waterway to now threaten the bridge and/or approach roadway.
2	The waterway has changed and now threatens the bridge and/or embankment. Scour is of sufficient depth beneath footing that substructure is near state of collapse. Settlement of abutment is occurring. Closure of bridge may be necessary because of channel failure.
1	Bridge closed because of channel failure. Corrective action may put bridge back into light service.
0	Bridge closed because of channel failure. Total replacement necessary.

ITEM 62 - CULVERTS **1 DIGIT FIELD**

This item evaluates the alignment, settlement, joints, structural condition, scour, and other items associated with culverts. The rating code is intended to be an overall condition evaluation of the culvert. Integral wingwalls will be included to the first construction or expansion joint.

(continued)

ITEM 62 - CULVERTS (cont'd)

Comprehensive rehabilitation of culverts will normally restore the unit to minimum rating of 7. For a detailed discussion regarding the inspection and rating of culverts, consult Report No. FHWA-IP-86--2, Culvert Inspection Manual, July 1986.

Item 58 - Deck, Item 59 - Superstructure, and Item 60 - Substructure shall be coded N for all culverts. Rate and code the condition in accordance with the previously described general condition ratings and the following descriptive codes:

Code	Description
N	Not applicable. Use when structure is not a culvert.
9	New condition.
8	No noticeable or noteworthy deficiencies which affect the condition of the culvert. Insignificant scrape marks caused by drift.
7	Shrinkage cracks, light scaling, and insignificant spalling which does not expose reinforcing steel. Insignificant damage caused by drift with no misalignment and not requiring corrective action. Minor scouring has occurred near curtain walls, wingwalls, or pipes. Metal culverts have a smooth symmetrical curvature with superficial corrosion and no pitting.
6	Deterioration or initial disintegration minor chloride contamination, cracking with leaching, or spalls on concrete or masonry walls and slabs. Local minor scouring at curtain walls, wingwalls, or pipes. Metal culverts have a smooth curvature, non-symmetrical shape, significant corrosion or moderate pitting.
5	Moderate to major deterioration or disintegration, extensive cracking and leaching, or spalls on concrete or masonry walls and slabs. Minor settlement or misalignment. Noticeable scouring or erosion at curtain walls, wingwalls, or pipes. Metal culverts have significant distortion and deflection in one section, significant corrosion or deep pitting.
4	Large spalls, heavy scaling, wide cracks, considerable efflorescence or opened construction joint permitting loss of backfill. Considerable settlement or misalignment. Considerable scouring or erosion at curtain walls, wingwalls or pipes. Metal culverts have significant distortion and deflection throughout, extensive corrosion and deep pitting.

(continued)

ITEM 62 - CULVERTS (cont'd)

Code	Description
3	Any condition described in Code 4 but which is excessive in scope. Severe movement or differential settlement of the segments, or loss of fill. Holes may exist in walls or slabs. Integral wingwalls nearly severed from culvert. Severe scour or erosion at curtain walls, wingwalls and pipes. Metal culverts have extreme distortion and deflection in one section, extensive corrosion or deep pitting with scattered perforations.
2	Integral wingwalls collapsed, severe settlement of roadway due to loss of fill. Section of culvert may have failed and can no longer support embankment. Complete undermining at curtain walls and pipes. Corrective action required to maintain traffic. Metal culverts have extreme distortion and deflection throughout with extensive perforations due to corrosion.
1	Bridge closed. Corrective action may put back in light service.
0	Bridge closed. Total replacement necessary.

ITEM 63 - METHOD USED TO DETERMINE OPERATING RATING 1 DIGIT FIELD

Use one of the codes below to indicate which load rating method was used to determine the Operating Rating coded in Item 64 for this structure. This item should only be changed by the ITD Bridge Rating Engineer.

Code	Description
1	Load Factor (LF)
2	Allowable Stress (AS)
3	Load and Resistance Factor (LRFR)
4	Load Testing
5	No rating analysis performed

ITEM 64 - OPERATING RATING (TONS) 2 DIGIT FIELD

This capacity rating, referred to as the operating rating, will result in the absolute maximum permissible load level to which the structure may be subjected for the vehicle type used in the rating. Code the operating rating as a 2-digit number to represent the total maximum in tons of the entire vehicle measured to the nearest ton.

If the bridge will not carry a minimum of 3.0 tons of live load, the operating rating shall be coded '00'; and consistent with the direction of the AASHTO Manual, it shall be closed.

(continued)

ITEM 64 - OPERATING RATING (TONS) (cont'd)

The use or presence of a temporary bridge requires special consideration when coding. In such cases, since there is no permanent bridge, Item 64 and 66 should be coded 00 even though the temporary structure is rated for as much as full legal load.

The operating (and inventory) rating for a bridge shored up or temporarily repaired should be coded as if the temporary measures were not in place. See Item 103 - Temporary Structure Designation for definition of a temporary bridge. If the structure has not yet been analyzed to determine the HS loading, use the following table:

Design Condition	Operating Code
H 10 Design Truck	18
HS 10 Design Truck	26
H 15 Design Truck	26
HS 15 Design Truck	38
H 20 Design Truck	35
HS 20 Design Truck	50
H 25 Design Truck	43
HS 25 Design Truck	63
HS 30 Design Truck	75
Railroad	00
Pedestrian	00
Temporary Bridge	00
Structure under sufficient fill That live load is insignificant (according to AASHTO design)	99

ITEM 65 - METHOD USED TO DETERMINE INVENTORY RATING 1 DIGIT FIELD

Use one of the codes below to indicate which load rating method was used to determine the Inventory Rating coded in Item 66 for this structure. This item should only be changed by the ITD Bridge Rating Engineer.

Code	Description
1	Load Factor (LF)
2	Allowable Stress (AS)
3	Load and Resistance Factor (LRFR)
4	Load Testing
5	No rating analysis performed

ITEM 66 - INVENTORY RATING (TONS) 2 DIGIT FIELD

This capacity rating, for the type of vehicle used in the rating, will result in a load level, which can safely utilize the existing structure for an indefinite period of time. Only the HS loading shall be used to determine the inventory rating. Code the Inventory Rating as a 2-digit number to represent the total mass in tons of the entire vehicle measured to the nearest ton.

EXAMPLES:

Design Condition	Inventory Code
H 10 Design Truck	13
HS 10 Design Truck	19
H 15 Design Truck	19
HS 15 Design Truck	27
H 20 Design Truck	25
HS 20 Design Truck	36
H 25 Design Truck	31
HS 25 Design Truck	45
HS 30 Design Truck	54
Railroad	00
Pedestrian	00
Temporary Bridge	00
Shored-up bridge *	03
Structure under sufficient fill That live load is insignificant (according to AASHTO design)	99

* load capacity without shoring.

APPRAISAL

The items in the Appraisal section are used to evaluate a bridge in relation to the level of service that it provides on the highway system of which it is a part. The structure will be compared to a new one (built to current standards for that particular type of road) as further defined below. Special criteria for rating Item 72 - Approach Roadway Alignment is given under that item description.

Item 67, 68, 69, 71 and 72 will be coded with one-digit code that indicates the appraisal rating for the item. The ratings and codes are as follows:

Code	Description
N	Not Applicable
9	Superior to present desirable criteria
8	Equal to present desirable criteria
7	Better than present minimum criteria
6	Equal to present minimum criteria
5	Somewhat better than minimum adequacy to tolerate being left in place as is.
4	Meets minimum tolerable limits to be left in place as is

(continued)

APPRAISAL (cont'd)

Code	Description
3	Basically intolerable requiring high priority of corrective action.
2	Basically intolerable requiring high priority of replacement.
1	This value of rating code not used
0	Bridge Closed

Tables are provided to evaluate items 67, 68, 69, and 71, and shall be used to determine the appropriate code for these items. They have been developed to closely match the descriptions for the appraisal evaluation codes of 0 to 9. The tables shall be used in all instances to evaluate the item based on the designated data in the inventory, even if a table does not appear to match the descriptive codes. For unusual cases where the site data does not exactly agree with the table criteria, use the most appropriate table to evaluate the item.

Level of service goals is a concept that several States have introduced into their bridge management to determine the need for bridge improvements.

Level of service goals are target values for selected bridge characteristics that are used to assess bridge adequacy. The goals may vary depending on the highway functional classification, traffic volume, and other factors. The goals are set with the recognition that widely varying traffic needs exist throughout highway systems and that many bridges on local roads can adequately serve traffic needs with lower load and capacity geometric standards than would be necessary for bridges on heavily traveled main highways.

The degree to which a bridge is deficient can be measured by comparing bridge characteristics with level of service goals. Shortfalls from the goals determine the type and extent of improvement needs. The shortfalls are useful for comparing bridge needs and setting improvement priorities. Needs determined by level of service goals which are graduated to traffic levels and the characteristics of vehicles served can differ greatly from those determined by a single standard that applies to all bridges, for example the AASHTO A Policy on Geometric Design of Highway and Streets 1984.

However, the application of particular level of service concepts as developed by individual States do not result in the desired consistency when evaluating structures on a national basis.

If uniformity and consistency are to be achieved, similar structures, roadway and vehicle characteristics must be evaluated using identical standards. Therefore, tables and charts have been developed which shall be used to evaluate and code appraisal items for all bridges submitted to the National Bridge Inventory regardless of individual State criteria used to evaluate bridges.

Completed bridges not yet opened to traffic, if rated, shall be appraised as if open to traffic. Design values, for example ADT, shall be used for evaluation. The data provided will included a code of G for Item 41 - Structure Open, Posted, or Closed to Traffic.

ITEM 67 - STRUCTURAL EVALUATION **1 DIGIT FIELD**

Please note that PONTIS <u>will</u> automatically calculate this Item.
The definition and coding below is just for your information.

The following specifications are used by the Edit/Update Program:

For structures other than culverts, the lowest of the codes obtained from Item 59 - Superstructure, Item 60 - Substructure, or Table 1 is used.

For culverts, the lowest of the codes obtained from Item 62 - Culverts, or Table 1 is used.

If Item 59, Item 60 or Item 62 is coded 1, then Item 67 is equal to zero (0), regardless of whether the structure is actually closed. However, if the structure is closed, it does not mean that this value is zero (0) unless the overall condition and appraisal ratings indicate that a code of 0 is appropriate.

<u>TABLE 1 NOTES</u>:

1. Use the lower rating code for values between those lines listed in the table.

2. Inventory Ratings are shown in tons with decimal point.

3. To use Table 1, the Inventory Rating must be the coded HS rating or its equivalent. If the comparable HS equivalent is not calculated for the controlling rating, using a factor to determine the HS equivalent is acceptable even though converting other rating loads to an HS equivalent is not a constant.

4. All bridges with Item 26 - Functional Class coded Interstate, Freeway or Expressway shall be evaluated using the ADT column of >5000 regardless of the actual ADT on the bridge.

(continued)

ITEM 67 STRUCTURAL EVALUATION (cont'd)

STRUCTURAL EVALUATION RATING - Item 67
by comparison of ADT - Item 29
and Inventory Rating - Item 66

TABLE 1			
Structural evaluation rating code	INVENTORY RATING AVERAGE DAILY TRAFFIC (ADT) 0-500	501-5000	>5000
9	>236* (HS20)**	>236 (HS20)	>236 (HS20)
8	236 (HS20)	236 (HS20)	236 (HS20)
7	231 (HS17)	231 (HS17)	231 (HS17)
6	223 (HS13)	225 (HS14)	227 (HS15)
5	218 (HS10)	220 (HS11)	222 (HS12)
4	212 (HS7)	214 (HS8)	218 (HS10)
3	Inventory rating less than value in rating code of 4 and requiring corrective action.		
2	Inventory rating less than value in rating code of 4 requiring replacement.		
0	Bridge closed.		

* Coded HS rating load (typical)
** HS designation (typical)

ITEM 68 - DECK GEOMETRY **1 DIGIT FIELD**

Please note that PONTIS <u>will</u> automatically calculate this Item.
The definition and coding below is just for your information.

The following specifications are used by the Edit/Update Program:

The overall rating for deck geometry includes two evaluations: (a) the curb-to curb or face-to-face of rail bridge width using Table 2A, B, C or D and (b) the minimum vertical clearance over the bridge roadway using Table 2E. The lower of the codes obtained from these tables is used by the Edit/Update Program. When an individual table lists several deck geometry rating codes for the same roadway width under a specific ADT, the lower code is used. (For example, Table 2A lists deck geometry rating codes of 6, 7 and 8 for a 44 foot roadway width and an ADT of >5000. Use the code of 6.). For values between those listed in the tables, the lower code is used.

The curb-to-curb or face-to-face of rail dimension shall be taken from Item 51 - Bridge Roadway Width, Curb-to-Curb. Item 53 - Minimum Vertical Clearance Over Bridge Roadway is used to evaluate the vertical clearance.

For culverts which have Item 51 - Bridge Roadway Width coded 0000, the deck Geometry code will be equal to N.

The values provided in the tables are for rating purposes only. Current design standards must be used for structure design or rehabilitation.

(continued)

ITEM 68 - DECK GEOMETRY (cont'd)

DECK GEOMETRY RATING - Item 68
by comparison of ADT - Item 29
and bridge roadway width,
Curb-to-curb - Item 51

TABLE 2A							TABLE 2B	
Deck Geometry Rating Code	Bridge Roadway Width 2 lanes; 2 way traffic						Bridge Roadway Width 1 lane; 2 way traffic	
	ADT (both directions)						ADT (both directions)	
	0-100	101-400	401-1000	1001-2000	2001-5000	>5000	0-100	>100
9	>32	>36	>40	>44	>44	>44	-	-
8	32	36	40	44	44	44	15’-11"	-
7	28	32	36	40	44	44	15	-
6	24	28	30	34	40	44	14	-
5	20	24	26	28	34	38	13	-
4	18	20	22	24	28	32 (28*)	12	-
3	16	18	20	22	26	30 (26*)	11	15’-11"
2	Any width less than required for a rating code of 3 and structure is open.							
0	Bridge closed.							

*Use value in parenthesis for bridges longer than 200’.

NOTES:
1. Use the lower rating code for values between those listed in the table.
2. Dimensions are in feet.
3. For 3 or more undivided lanes of 2-way traffic, use Table 2C. Other Multi-lane Divided Facilities.
4. Do not use Table 2B for code 9. Also do not us Table 2B for codes 8 through 4 inclusive when the ADT >100. Single lane bridges less than 16 feet wide carrying 2-way traffic are always appraised at 3 or below if they carry more than and ADT of 100.
5. One lane bridges 16’ or greater in roadway widths, which are not ramps, are, evaluated as 2-lane bridge using table 2A.

(continued)

ITEM 68 - DECK GEOMETRY (cont'd)

DECK GEOMETRY RATING - ITEM 68
by comparison of number of lanes - Item 28
and bridge roadway width, curb to curb - Item 51

TABLE 2C					TABLE 2D	
Deck Geometry Rating Code	Bridge Roadway Width 2 or more lanes				Bridge Roadway Width One way Traffic	
	Interstate		Other Multi-lane Divided Facilities		Ramps Only	
	2 lanes	3 or more lanes	2 lanes	3 or more lanes	1 lane	2 or more lanes
9	>42	>12N+24	>42	>12N+18	>26	>12N+12
8	42	12N+24	42	12N+18	26	12N+12
7	40	12N+20	38	12N+15	24	12N+10
6	38	12N+16	36	12N+12	22	12N+8
5	36	12N+14	33	11N+10	20	12N+6
4	34 (29)*	11N+12 (11N+7)*	30	11N+6	18	12N+4
3	33 (28)*	11N+11 (11N+6)	27	11N+5	16	12N+2
2	Any width less than required for a rating code of 3 and the structure is open.					
1	Bridge closed.					

*Use value in parentheses for bridges longer than 200'.
N = number of lanes of traffic
Notes:
1. Use the lower rating code for values between those listed in the tables.
2. Dimensions are in feet.
3. Use Table 2C, Other Multilane Divided facilities, for 3 or more undivided lanes of 2 way traffic.

(continued)

ITEM 68 - DECK GEOMETRY (cont'd)

DECK GEOMETRY - ITEM 68
by comparison of Minimum Vertical Clearance
over Bridge Roadway - Item 53 and Functional
Classification - Item 26

TABLE 2E				
Deck Geometry Rating Code	Minimum Vertical Clearance			
	Functional Class			
	Interstate		Other Principal and Minor Arterials	Major and Minor Collectors and Locals
	All routes (Except as noted for urban areas)	Business Routes, Urban Areas*		
9	>17’ - 0"	>16’ - 6"	>16’ - 6"	>16’ - 6"
8	17’ - 0"	16’ - 6"	16’ - 6"	16’ - 6"
7	16’ - 9"	15’ - 6"	15’ - 6"	15’ - 6"
6	16’ - 6"	14’ - 6"	14’ - 6"	14’ - 6"
5	15’ - 9"	14’ - 3"	14’ - 3"	14’ - 3"
4	15’ - 0"	14’ - 0"	14’ - 0"	14’ - 0"
3	Vertical clearance less than value in rating code 4 and requiring corrective action.			
2	Vertical clearance less than value in rating code 4 and requiring replacement.			
0	Bridge closed.			

***** Use for routes in highly developed urban areas only when there is an alternative Interstate, freeway or expressway facility with a minimum of 16’ - 0" clearance.

NOTES:
1. Use the lower rating code for values between those listed in the table.

2. Dimensions are in feet.

ITEM 69 - UNDERCLEARANCES, VERTICAL AND HORIZONTAL **1 DIGIT FIELD**

Please note that PONTIS <u>will</u> automatically calculate this Item.
The definition and coding below is just for your information.

This refers to vertical and horizontal underclearances from the through roadway to the superstructure or substructure units, respectively. Code "N" is used unless the bridge is over a highway or railroad.

The vertical underclearance shall be evaluated using Table 3A. The horizontal underclearance shall be evaluated using Table 3B. The lower of the codes obtained from Table 3A and Table 3B shall be used.

Bridges seldom are closed due to deficient underclearance. However, they may be good candidates for rehabilitation or replacement.

Item 54 - Minimum Vertical Underclearance, Item 55 - Minimum Lateral Underclearance on Right and Item 56 - Minimum Lateral Underclearance on left shall be used to evaluate this item.

The functional classification to be used in the table is for the underpassing route. Therefore, the functional classification must be obtained from the record for the route "under" the bridge (see Item 5 - Inventory Route).

If the underpassing route is not on a Federal-aid system, is not a defense route, or is not otherwise important, use the Major and Minor Collector and Locals column in Tables 3A and 3B.

Tables 3A and 3B are on the following pages.

(continued)

ITEM 69 - UNDERCLEARANCES, VERTICAL AND HORIZONTAL (cont'd)

UNDERCLEARANCE, VERTICAL - ITEM 69
by Comparison of Minimum Vertical
Underclearance - Item 54 and
Functional Classification - Item 26

TABLE 3A

Under Clearance Rating Code	Minimum Vertical Underclearance				
	Functional Class				
	Interstate and other Freeway		Other Principal and Minor Arterials	Major and Minor Collectors and Locals	Railroad
	All Routes (except as noted for urban area)	Undesignated Routes, Urban Areas*			
9	>17’ - 0"	>16’ - 6"	>16’ - 6"	>16’ - 6"	>23’ - 0"
8	17’ - 0"	16’ - 6"	16’ - 6"	16’ - 6"	23’ - 0"
7	16’ - 9"	15’ - 6"	15’ - 6"	15’ - 6"	22’ - 6"
6	16’ - 6"	14’ - 6"	14’ - 6"	14’ - 6"	22’ - 0"
5	15’ - 9"	14’ - 3"	14’ - 3"	14’ - 3"	21’ - 0"
4	15’ - 0"	14’ - 0"	14’ - 0"	14’ - 0"	20’ - 0"
3	Underclearance less than value in rating code of 4 and requiring corrective action.				
2	Underclearance less than value in rating code of 4 and requiring replacement.				
0	Bridge closed.				

*****Use for routes in highly developed urban areas only when there is and alternative Interstate, freeway or expressway facility with a minimum of 16’ - 0 clearance.

NOTES:
1. Use the lower rating code for values between those listed in the table.
2. Dimensions are in feet.
3. The functional classification of the under-passing route shall be used in the evaluation. If an "under" record is not coded, the under-passing route shall be considered a major or minor collector or a local road.

(continued)

ITEM 69 - UNDERCLEARANCES, VERTICAL AND HORIZONTAL (cont'd)

UNDERCLEARANCE, HORIZONTAL - ITEM 69
by Comparison of Minimum Lateral
Underclearances Right & Left - Items 55 & 56
and Functional Classification - Item 26

TABLE 3B

Under-clearance Rating Code	Minimum Lateral Underclearance						
	Functional Class						
	One-way Traffic				Two-way Traffic		Railroad
	Principal Arterials Interstate, Freeways or Expressways				Other Principal and Minor Arterials	Major & Minor Collectors and Locals	
	Main Line		Ramp				
	left	right	left	Right			
9	>30	>30	>4	>10	>30	>12	>20
8	30	30	4	10	30	12	20
7	18	21	3	9	21	11	17
6	6	12	2	8	12	10	14
5	5	11	2	6	10	8	11
4	4	10	2	4	8	6	8
3	Underclearance less than value in rating code of 4 and requiring corrective action.						
2	Underclearance less than value in rating code of 4 and requiring replacement.						
0	Bridge closed.						

NOTES:
1. Use the lower rating code for values between those listed in the tables.
2. Dimensions are in feet.
3. When acceleration or deceleration lanes or ramps are provided under 2-way traffic, use the value from the right ramp column to determine code.
4. The functional classification of the under-passing route shall be used in the evaluation. If an "under" record is not coded, the under-passing route shall be considered a major or minor collector.

ITEM 70 - BRIDGE POSTING **1 DIGIT FIELD**

The National Bridge Inspection Standards require the posting of load limits only if the maximum legal load in the State produces stresses in excess of the operating stress level. If the load capacity at the operating level is such that posting is required, this item shall be coded 0 through 4. If no posting is required at the operating level, this item shall be coded 5.

This item evaluates the load capacity of a bridge in comparison to the State legal load. It differs from Item 67 - Structural Evaluation in that Item 67 uses the inventory rating while the bridge posting requirement is based on the operating rating.

Although posting a bridge for load-carrying capacity is required only when the maximum legal load exceeds the operating rating capacity, highway agencies may choose to post at lower rating capacities. This posting practice may appear to produce conflicting coding when Item 41 - Structure Open, Posted or Closed to Traffic is coded to show the bridge as actually posted at the site and Item 70 - Bridge Posting is coded as bridge posting is not required. Since different criteria are used for coding these 2 items, this coding is acceptable and correct when the highway agency elects to post at less than the operating rating stress level. Item 70 shall be coded 0 through 4 only if the legal load of the State exceeds that permitted under the operating rating.

The use or presence of a temporary bridge affects the coding. The load capacity shall reflect the actual capacity of the temporary bridge at the operating rating. This also applies to bridges shored up or repaired on a temporary basis.

Code	Description
0, 1, 2, 3 or 4	Posting required
5	No posting required

The degree that the operating rating stress level is under the maximum legal load stress level may be used to differentiate between codes. As a guide and for coding purposes only, the following values may be used to code this item:

Code	Relationship of Operating Rating Stress to Legal Load Stress	Description
5	Equal to or above legal loads	No posting required
4	0.1 - 9.9% below	Posting required
3	10.0 - 19.9% below	Posting required
2	20.0 - 29.9% below	Posting required.
1	30.0 - 39.9% below	Posting required.
0	> 39.9% below	Posting required.

ITEM 71 - WATERWAY ADEQUACY **1 DIGIT FIELD**

This item appraises the waterway opening with respect to passage of flow through the bridge. The following codes shall be used in evaluating waterway adequacy. Site conditions may warrant somewhat higher or lower ratings than indicated by the table (e.g., flooding of an urban area due to a restricted bridge opening).

Where overtopping frequency information is available, the descriptions given in the table for chance of overtopping mean the following:

Remote	greater than 100 years
Slight	11 to 100 years
Occasional	3 to 10 years
Frequent	less than 3 years

Adjectives describing traffic delays mean the following:

Insignificant	Minor inconvenience. Highway passable in a matter of hours.
Significant	Traffic delays of up to several days.
Severe	Long term delays to traffic with resulting hardship.

FUNCTIONAL CLASSIFICATION			DESCRIPTION
Principal Arterials - Interstate Freeways or Expressway	Principal and Minor Arterials and Major Collectors	Minor Collectors Locals	
N	N	N	Bridge not over waterway.
9	9	9	Bridge deck and roadway approached above floodwater elevations (high water). Chance of over-topping is remote.
8	8	8	Bridge deck above roadway approaches. Slight chance of overtopping roadway approaches.
6	6	7	Slight chance of over-topping bridge deck and roadway approaches.

(Table continued on next page)

ITEM 71 - WATERWAY ADEQUACY (cont'd)

FUNCTIONAL CLASSIFICATION			DESCRIPTION
Principal Arterials - Interstate Freeways or Expressway	Principal and Minor Arterials and Major Collectors	Minor Collectors Locals	
4	5	6	Bridge deck above roadway approaches. Occasional overtopping of roadway approaches with insignificant traffic delays.
3	4	5	Bridge deck above road approaches. Occasional overtopping of roadway approaches with significant traffic delays.
2	3	4	Occasional overtopping of bridge deck & roadway approaches w/significant traffic delays.
2	2	3	Frequent overtopping of bridge deck & roadway approaches w/significant traffic delays.
2	2	2	Occasional or frequent overtopping of bridge deck & roadway approaches with severe traffic delays.
0	0	0	Bridge closed.

ITEM 72 - APPROACH ROADWAY ALIGNMENT 1 DIGIT FIELD

Code the rating based on the adequacy of the approach roadway alignment. This item identifies those bridges which do not function properly or adequately due to the alignment of the approaches. It is not intended that the approach roadway alignment be compared to current standards but rather to the existing highway alignment. This concept differs from other appraisal evaluations. The establishment of set criteria to be used at all bridge sites is not appropriate for this item. The basic criteria are how the alignment of the roadway approaches to the bridge relates to the general highway alignment for the section of highway the bridge is on.

The individual structure shall be rated in accordance with the general appraisal rating guide in lieu of specific design values. The approach roadway alignment will be rated intolerable (a code of 3 or less) only if the horizontal or vertical curvature requires a substantial reduction in the vehicle operating speed from that on the highway section. A very minor speed reduction will be rated a 6, and when a speed reduction is not required, the appraisal code will be an 8. Additional codes may be selected between these general values.

For example, if the highway section requires a substantial speed reduction due to vertical or horizontal alignment, and the roadway approach to the bridge requires only a very minor additional speed reduction at the bridge, the appropriate code would be a 6. This concept shall be used at each bridge site.

Speed reductions necessary because of structure width and not alignment shall not be considered in evaluating this item.

ITEM 73 – NOT USED

ITEM 74 – NOT USED

ITEM 75 - TYPE OF WORK **3 DIGIT FIELD**

This item must be coded for structures eligible for the Highway Bridge Replacement and Rehabilitation Program ("sufficiency rating" less than **80.0**).

The information shall be recorded as a 3-digit number composed of two segments.

Segment	Description	Length
75A	Type of Work Proposed	2 digits
75B	Work done by	1 digit

The first two digits (75A) should be coded to represent the proposed work type (to improve the bridge to the point that it will provide the type of service needed). Use one of the following codes to represent the proposed work type.

Code	Description
31	Replacement of bridge or other structure because of substandard load carrying capacity or substandard bridge roadway geometry.
32	Replacement of bridge or other structure because of relocation of road.
33	Widening of existing bridge or other major structure without deck rehabilitation or replacement; includes culvert lengthening.
34	Widening of existing bridge with deck rehabilitation or replacement.
35	Bridge rehabilitation because of general structure deterioration or inadequate strength.
36	Bridge deck rehabilitation with only incidental widening.
37	Bridge deck replacement with only incidental widening.
38	Other structural work.

The third digit (75B) shall be coded using one of the following codes to indicate whether the proposed work is to be done by contract or by force account.

Code	Description
1	Work to be done by contract
2	Work to be done by owner's forces

(continued)

ITEM 75 - TYPE OF WORK (cont'd)

EXAMPLES:

Code

311 A bridge is to be replaced by contract because it has deteriorated to the point that it can no longer carry legal loads. The same code should be used if the bridge is replaced because it is now too narrow or the original design was too light to accommodate today's legal loads.

321 A bridge is to be replaced because the roadway must be straightened to eliminate a dangerous curve. The work will be done by contract.

331 This includes widening of a bridge to increase shoulder width or the number of traffic lanes. The existing deck is in good condition and will be incorporated as is into the new structure. The work is to be done by contract. This also includes extending a culvert.

341 A deck is to be rehabilitated and the bridge widened to provide a full 12-foot shoulder. The existing shoulder is only 4 feet wide and an extra line of girders with appropriate substructure widening must be added. The work will be done by contract

352 A bridge superstructure and substructure is to be rehabilitated by State forces to increase its load capacity.

361 A bridge deck is to be rehabilitated by contract and a safety curb to be removed which results in incidental widening of 2 feet.

371 A bridge deck is to be replaced by contract and the deck cantilever overhang extended 2 feet, which is the maximum that can be done without adding another line of stringers or girders to the superstructure.

382 A bridge which is no longer needed is to be demolished and an "at grade" crossing built by State forces. This code could also be used to designate incidental safety work on a bridge such as bridge rail upgrading or replacement.

ITEM 76 - LENGTH OF IMPROVEMENT (XXXXXX ft) **6 DIGIT FIELD**

This item must be coded for structures eligible for the Highway Bridge Rehabilitation and Replacement Program (sufficiency rating less than 080.0).

Code a 6-digit number that represents the length of the proposed bridge improvement to the nearest foot. For replacement or rehabilitation of the entire bridge, the length should be back to back of backwalls of abutments or from pavement notch to pavement notch. For replacement or rehabilitation of only part of the structure, use the length of the portion to be improved.

(continued)

ITEM 76 - LENGTH OF STRUCTURE IMPROVEMENT (cont'd)

For culvert improvements use the proposed length measured along the centerline of the barrel regardless of the depth below grade. The measurement should be made between the inside faces of the top parapet or edge stiffening beam of the top slab.

EXAMPLES:

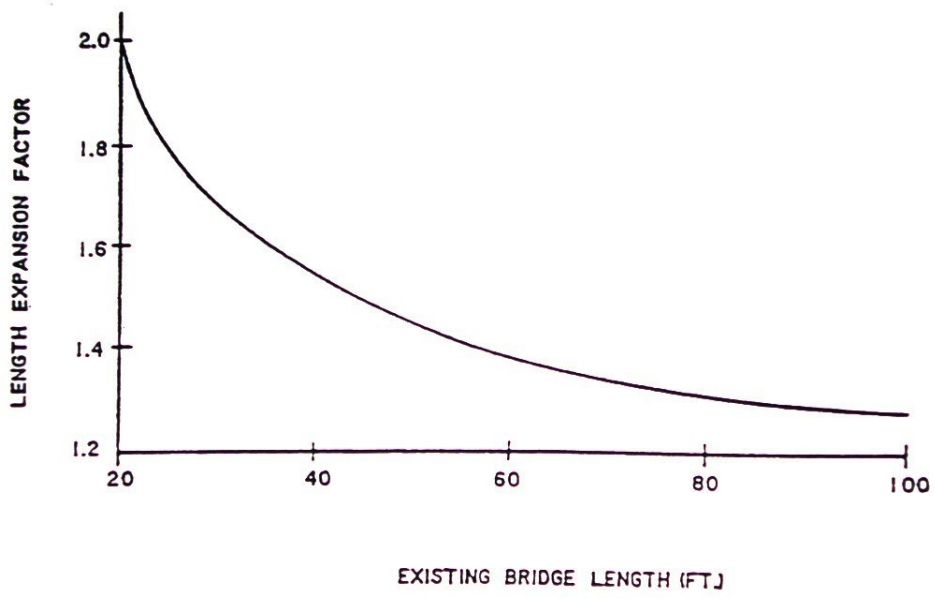
Length of Structure Improvement	Code
250 feet	000250
1,200 feet	001200
12,345 feet	012345

For substructure work only, code the length of superstructure supported by the substructure. For channel work only, code the length of superstructure over the channel.

Typically, a replacement bridge will be longer than the existing bridge. Nationwide averages (1981-1985) for the increase in bridge length (as a function of the existing length) are given in the graphs on the following page. Where site specific data is lacking, these factors are suggested for estimating the length of replacement bridges. For exceedingly long bridges (i.e., 1000 feet or more) the length-expansion factor (LF) approaches 1.0.

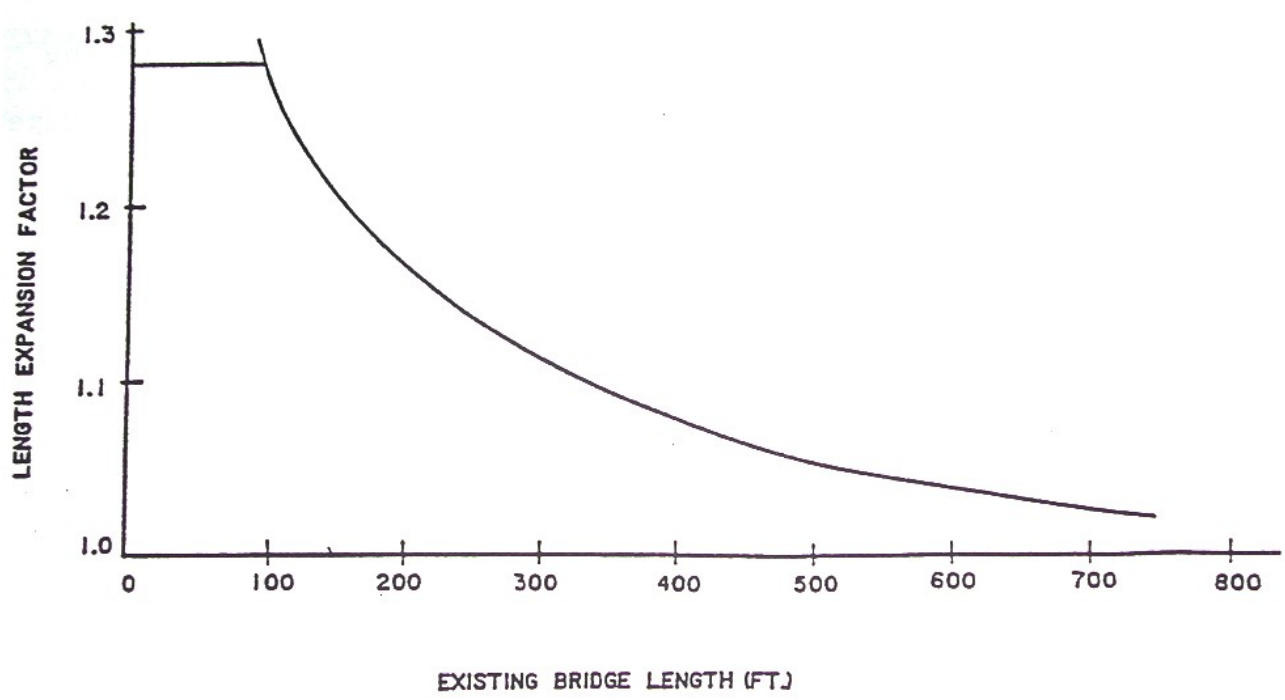
Increased Length of Replaced Bridges

Replaced Bridge Length = Existing Bridge Length x Length-Expansion Factor



(continued)

ITEM 76 - LENGTH OF STRUCTURE IMPROVEMENT (cont'd)



ITEM 77 – NOT USED

ITEM 78 – NOT USED

ITEM 79 – NOT USED

ITEM 80 – NOT USED

ITEM 81 – NOT USED

ITEM 82 – NOT USED

ITEM 83 – NOT USED

ITEM 84 – NOT USED

ITEM 85 – NOT USED

ITEM 86 – NOT USED

ITEM 87 – NOT USED

ITEM 88 – NOT USED

ITEM 89 NOT USED

ITEM 90 - INSPECTION DATE **4 DIGIT FIELD**

Record the month and year that the last routine inspection of the structure was performed. This inspection date may be different from those recorded in Item 93 - Critical Feature Inspection Date. Code a 4-digit number to represent the month and year. The number of the month should be coded in the first two digits (with leading zeros as required). The last two digits of the year should be coded as the third and fourth digits of the field.

		Code
EXAMPLES:	Inspection date November, 2003	1103
	Inspection date March, 2004	0304

ITEM 91 - DESIGNATED INSPECTION FREQUENCY **2 DIGIT FIELD**

Code 2-digits to represent the number of the months between designated inspections of the structure. Leading zeros shall be coded. The individual in charge of the inspection program usually determines this interval. For posted, under-strength bridges, this interval should be substantially less than the 24-month standard. The designated inspection interval could vary from inspection to inspection depending on the condition of the bridge at the time of inspection.

EXAMPLES:	Code
Posted bridge with heavy truck traffic and questionable structural details which is designated to be inspected each month.	01
Bridge is scheduled to be inspected every 24 months	24

It should be noted that bridges will also require special non-scheduled inspections after unusual physical traumas such as floods, earthquakes, fires or collisions. These special inspections may range from a very brief visual examination to detailed in-depth evaluation depending upon the nature of the trauma. For example, when an errant vehicle strikes a substructure pier or abutment, in most cases only a visual examination of the bridge is necessary. After major collisions or earthquakes, in-depth inspections may be warranted as directed by the engineer in overall charge of the program. After and during severe floods, the stability of the substructure of bridges may have to be determined by probing, underwater sensors or other appropriate measures. Underwater inspection by divers may be required for scour critical bridges immediately after floods. (See Item 113 for designation of scour critical bridges.)

ITEM 92 - CRITICAL FEATURE INSPECTION 18 DIGIT FIELD

Using a series of 3-digit code segments, denote critical features that need special inspections or special emphasis during inspections and the designated inspection interval in months as determined by the individual in charge of the inspection program. The designated inspection interval could vary from inspection to inspection depending on the condition of the bridge at the time of the inspection. The recommended intervals are 60 months for Underwater and 48 months for Reach-All inspections.

Segment	Description	Length
92A	Fracture Critical	3 digits
92B	Underwater Inspection	3 digits
92C	Other Special Inspection (fatigue crack inspection)	3 digits
92D	Reach-All Inspection	3 digits
92E	Confined space inspection	3 digits

For each of 92A, B, C, D, E and F code the first digit Y for needs special inspection or emphasis needed and code N for not needed. The first digit must be coded for all structures to designate either a yes or no answer.

In the second and third digits of each segment, code a 2-digit number to indicate the number of months between inspections only if the first digit is coded Y. If the first digit is coded N, the second and third digits are left blank.

EXAMPLES:

A two-girder system structure that is being inspected yearly and no other special inspections are required.

Item	Code
92A	Y 1 2
92B	N - -
92C	N - -
92D	N - -
92E	N - -

A structure where both fracture critical and underwater inspections are being performed on a 1 year interval and Reach-All inspections are being performed on a 4 year interval. Other special inspections are not required.

Item	Code
92A	Y 1 2
92B	Y 1 2
92C	N - -
92D	Y 4 8
92E	N - -

(continued)

ITEM 92 CRITICAL FEATURE INSPECTION (cont'd)

EXAMPLES: (cont'd)

A structure has fatigue prone details with cracks visible and is being inspected on a six-month interval. Other special inspections are not required.

Item	Code
92A	N - -
92B	N - -
92C	Y 0 6
92D	N - -
92E	N - -

ITEM 93 - CRITICAL FEATURE INSPECTION DATE 20 DIGIT FIELD

Use only if the first digit of Item 92A, B, C, D or E is coded Y for yes. Record as a series of 4-digit code segments, the month and year that the last inspection of the denoted critical feature was performed.

Segment	Description	Length
93A	Fracture Critical Details	4 digits
93B	Underwater Inspection	4 digits
93C	Other Special Inspection	4 digits
93D	Reach-All Inspection	4 digits
93E	Confined Space Inspection	4 digits

For each applicable segment of this item, code a 4-digit number to represent the month and year. The number of the month should be coded in the first two digits (with leading zeros as required) and the last two digits of the year coded as the third and fourth digits of the field. If the first digit of any part of Item 92 is coded N, then the corresponding part of this item shall be blank.

EXAMPLES:

A structure has fracture critical members that were last inspected in March 1999. It does not require any other special inspections.

Item	Code
93A	0399
93B	(blank)
93C	(blank)
93D	(blank)
93E	(blank)

A structure has no fracture critical details, but requires underwater inspection, Confined Space and Reachall inspection. The last underwater inspection was done in April 1998 and last Reachall and Confined Space inspection was done in November 1997.

Item	Code
93A	(blank)
93B	0498
93C	(blank)
93D	1197
93E	1197

ITEM 94 - BRIDGE IMPROVEMENT COST **9 DIGIT FIELD**

Code a dollar amount to represent the cost of the proposed bridge or major structure improvements in thousands of dollars. This cost shall include only bridge construction costs, excluding roadway, right of way, detour, demolition, preliminary engineering, etc. Do not use this item for estimating maintenance costs.

EXAMPLES:	Bridge Improvement Cost	Code
	$ 55,850	56000
	$ 250,000	250000
	$7,451,233	7451000

As of January 2003, the average costs for bridge replacement, widening of a culvert or rigid frame and the cost of a deck overlay or rehab are as follows. A new prestressed concrete structure is averaging approximately **$95.00** per square foot. A new overlay or a deck rehab is averaging approximately **$25.00** per square foot. The widened addition of a culvert or rigid frame structure is averaging approximately **$100.00** per square foot. **$100.00** per square foot may also be used for estimating bridge widening projects.

The following procedure may be used as a guide in preparing bridge improvement cost estimates.

Apply an appropriate construction unit cost to the proposed bridge area (as determined by current State deck geometry design standards and the proposed bridge length from Item 76 Length of Structure Improvement). Deck width may be determined from the table below.

Est. == Deck Width x Length of Structure Improvement x Unit Cost

STANDARD ROADWAY WIDTHS (FT) (including paved shoulders) Code 3 *****

Average Daily Traffic Code 2	Functional Classification Code 1			
	01,11	02,06,12,14,16	07,08, 17	09,19
0 - 249	38	32	26	24
250 - 399	38	32	26	26
400 - 999	38	36	30	30
1000 - 1999	38	36	38	34
2000 - 4000	38	40	40	40
over 4000	38	44	40	40

1 from Item 26 - Functional Classification of Inventory Road
2 from Item 29 - Average Daily Traffic
3 use only if Item 32 - Approach Roadway Width is narrower than the value given in the chart.

***NOTE: Add 2 feet for each bridge rail and 7 feet for each anticipated sidewalk.**

ITEM 95 - ROADWAY IMPROVEMENT COST **9 DIGIT FIELD**

Code a dollar amount to represent the cost of the proposed roadway improvement in thousands of dollars. This shall include only roadway construction costs, excluding bridge, right of way, detour, extensive roadway realignment costs, preliminary engineering, etc. Do not use this item for estimating maintenance costs.

In absence of a procedure for estimating roadway improvement costs, a guide of 10 percent of the bridge costs should be used.

ITEM 96 - TOTAL PROJECT COST **9 DIGIT FIELD**

Code a dollar amount to represent the total project cost in thousands of dollars, including incidental costs not included in Items 94 and 95. This item should include all costs normally associated with the proposed bridge improvement project. The Total Project Cost will therefore usually be greater than the sum of Items 94 and 95. Do not use this item for coding maintenance costs.

In the absence of a procedure for estimating the total project cost, a guide of 150 percent of the bridge cost should be used.

ITEM 97 - YEAR OF IMPROVEMENT COST ESTIMATE **4 DIGIT FIELD**

Record the year that the costs of work estimated in Items 94 through 96 were based upon. This date and the data provided for Items 94 through 96 must be current; that is, Item 97 shall be no more than 8 years old.

EXAMPLES:	Code
1998 COSTS	1998
2010 COSTS	2010

ITEM 98 - BORDER BRIDGE **5 DIGIT FIELD**

Use this item to indicate structures crossing borders of states. Code a 5-digit number (composed of 2 segments) for this item specifying the responsibility for improvements to the existing structure when it is shared with a neighboring state. Code the first 3 digits with the neighboring state code (using state codes listed in Item 1 - State Code). Code the fourth and fifth digits with percentage of the bridge that the neighboring state is responsible for funding.

Segment	Description	Length
98A	Neighboring State Code	3 digits
98B	Percent Responsibility	2 digits

If a neighboring state codes the structure and accepts 100% of the responsibility, but your State still codes a record for the structure, then Item 98B in your States record should be coded 99 to represent that your State has no responsibility for the structure.

(continued)

ITEM 98 - BORDER BRIDGE (cont'd)

For the special case of a structure on the border with Canada, code the Neighboring State Code value = CAN. If structure is not on a border, leave blank.

EXAMPLES:	Code
A structure connects Idaho with Oregon and Oregon is responsible for funding 45 percent of future improvement costs.	41045
A structure connects Idaho with Canada, and Canada is not responsible for any funding of future improvement costs.	CAN00

ITEM 99 - BORDER BRIDGE STRUCTURE NUMBER **15 DIGIT FIELD**

Code the neighboring state's 15 digit National Bridge Inventory structure number for any structure noted in Item 98 - Border Bridge. This number must match exactly the neighboring state's submitted NBI structure number. The entire 15-digit field must be accounted for including zeros and blank spaces whether they are leading, trailing, or embedded in the 15 digit field. If Item 98 is blank, this item is blank.

ITEM 100 - STRAHNET HIGHWAY DESIGNATION **1 DIGIT FIELD**

This item shall be coded for all records in the inventory. For the inventory route identified in Item 5, indicate STRAHNET highway conditions using one of the following codes:

Code	Description
0	Inventory route is not a STRAHNET route.
1	The inventory route is on an interstate STRAHNET highway.
2	The inventory route is on a non-interstate STRAHNET route.
3	The inventory route is on a STRAHNET connector route.

ITEM 101 - PARALLEL STRUCTURE DESIGNATION **1 DIGIT FIELD**

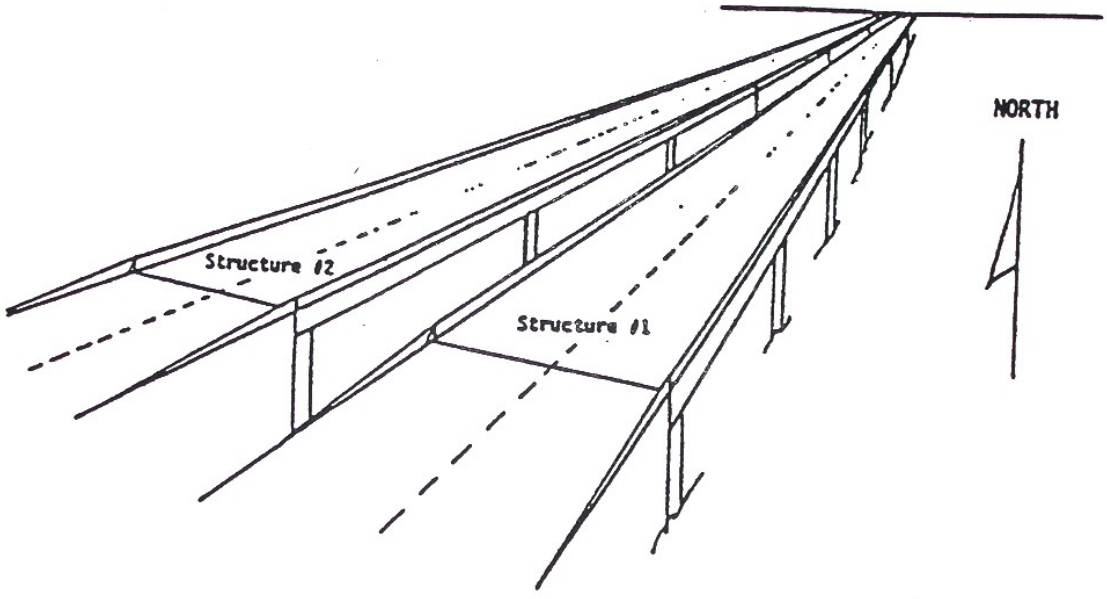
Code this item to indicate situations where separate structures carry the inventory route in opposite directions of travel over the same feature.

One of the following codes shall be used.

Code	Description
R	The right structure of parallel bridges carrying the roadway in the direction of the inventory. (For a STRAHNET highway, this is west to east and south to north)
L	The left structure of parallel bridges. This structure carries traffic in the opposite direction.
N	No parallel structure exists.

EXAMPLES:

	Code
Structure # 1	R
Structure # 2	L



ITEM 102 - DIRECTION OF TRAFFIC **1 DIGIT FIELD**

Code the direction of traffic as a 1-digit number. This item must be compatible with other traffic related items such as Item 29 - Average Daily Traffic and Item 51 - Bridge Roadway Width, curb-to-curb.

Code	Description
0	Highway traffic not carried
1	1-way traffic
2	2-way traffic
3	One lane bridge, for 2-way traffic

ITEM 103 - TEMPORARY STRUCTURE DESIGNATION **1 DIGIT FIELD**

Code this item to indicate situations where temporary structures or conditions exist. This item should be blank if not applicable.

Code	Description
T	Temporary structure(s) or conditions exist.
(blank)	No temporary structure

Temporary structure(s) or conditions are those that are required to facilitate traffic flows. This may occur either before or during the modification or replacement of a structure found to be deficient. Such conditions include:

1. Bridges shored up, including additional temporary supports.

2. Temporary repairs made to keep a bridge open.

3. Temporary structure, temporary run-around or bypass.

4. Other temporary measures, such as barricaded traffic lanes to keep the bridge open.

Any repaired structure or replacement structure, which is expected to remain in place without further project activity, other than maintenance, for a significant period of time, shall not be considered temporary. Under such condition, that structure, regardless of its type, shall be considered the minimum adequate to remain in place and evaluated accordingly.

If this item is coded T, then all data recorded for the structure shall be for the condition of the structure without temporary measures, except for the following items which shall be for the temporary structure.

(continued)

ITEM 103 - TEMPORARY STRUCTURE DESIGNATION (cont'd)

Item

10 - Inventory Route, Minimum Vertical Clearance
41 - Structure Open, Posted, or Closed to Traffic
47 - Inventory Route, Total Horizontal Clearance
53 - Minimum Vertical Clearance Over Bridge Roadway
54 - Minimum Vertical Underclearance
55 - Minimum Lateral Underclearance on Right
56 - Minimum Lateral Underclearance on Left
70 - Bridge Posting

ITEM 104 - HIGHWAY SYSTEM OF THE INVENTORY ROUTE 1 DIGIT FIELD

This item is to be coded for all records in the inventory. For the inventory route identified in Item 5, indicate whether the inventory route is on the National Highway System (NHS) or not on that system. Initially, this code shall reflect an inventory route on the NHS "Interim System" description in Section 1006(a) of the 1991 ISTEA. Upon approval of the NHS by Congress, the coding is to reflect the approved NHS. Use one of the following codes:

Code	Description
0	Inventory Route is not on the NHS
1	Inventory Route is on the NHS

Code this Item (1) if Item 26 is coded 1, 2, 11, 12 or 14.

ITEM 105 - FEDERAL LANDS HIGHWAYS 1 DIGIT FIELD

Structures owned by state and local jurisdictions on roads which lead to and traverse through federal lands sometimes require special coded unique identification because they are eligible to receive funding from the Federal Lands Highway Program. One of the following codes shall be used:

Code	Description
0	Not applicable
1	Indian reservation Road (IRR)
2	Forest Highway (FH)
3	Land Management Highway System (LMHS)
4	Both IRR and FH
5	Both IRR and LMHS
6	Both FH and LMHS
9	Combined IRR, FH and LMHS

ITEM 106 - YEAR RECONSTRUCTED **4 DIGIT FIELD**

Record and code the year of reconstruction of the structure. Code all four digits of the latest year in which reconstruction of the structure was completed. If there has been no reconstruction, code 0000.

For a bridge to be defined as reconstructed, the type of work performed, whether or not it meets current minimum standards, must have been eligible for funding under any of the Federal-aid funding categories. The eligibility criteria would apply to work performed regardless of whether all state or local funds or Federal-aid funds were used.

Some types of eligible work not to be considered as reconstruction are as follows:

Safety feature replacement or upgrading (for examples, bridge rail, approach rail or impact attenuators).

Painting of structural steel.

Overlay of bridge deck as part of a larger surfacing project (for example, overlay carried across bridge deck for surface uniformity without additional bridge work).

Emergency repair to restore structural integrity to the previous status following an accident.

Retrofitting to correct a deficiency which does not substantially alter physical geometry or increase the load-carrying capacity.

Work performed to keep a bridge operational while plans for complete rehabilitation or replacement are under preparation (for example, adding a substructure element or extra girder).

EXAMPLE:	Code
Reconstruction completed 2000	2000

ITEM 107 - DECK STRUCTURE TYPE **1 DIGIT FIELD**

Indicate the type of deck system on the bridge using one of the following codes. If more than one type of deck system is on the bridge, code the most predominant. Code N for a filled culvert or arch with the approach roadway section carried across the structure.

Code	Description
1	Concrete Cast in Place
2	Concrete Precast Panels
3	Open Grating
4	Closed Grating
5	Steel Plate (includes orthotropic)
6	Corrugated Steel
7	Aluminum
8	Timber
9	Other
N	Not applicable

ITEM 108 - WEARING SURFACE/PROTECTIVE SYSTEM **3 DIGIT FIELD**

This item is a 3-digit code composed of 3 segments.

Segment	Description	Length
108A	Type of Wearing Surface	1 digit
108B	Type of Membrane	1 digit
108C	Deck Protection	1 digit

1st Digit - Type of Wearing Surface (Item 108A)

Code	Description
1	Concrete
2	Integral Concrete *****
3	Latex Concrete
4	Low Slump Concrete
5	Epoxy Overlay
6	Bituminous
7	Timber
8	Gravel
9	Other
0	None
N	Not Applicable (applies only to structures with no deck)

***** Separate layer of concrete added but not latex modified, low slump, etc.

(continued)

ITEM 108 - WEARING SURFACE/PROTECTIVE SYSTEM (cont'd)

2nd Digit - Type of Membrane (Item 108B)

Code	Description
1	Built-up
2	Preformed Fabric
3	Epoxy
8	Unknown
9	Other
0	None
N	Not Applicable (applies only to structures with no deck)

3rd Digit - Deck Protection (Item 108C)

Code	Description
1	Epoxy Coated Reinforcing
2	Galvanized Reinforcing
3	Other Coated Reinforcing Bar
4	Cathodic Protection
5	(Not Used)
6	Polymer Impregnated
7	Internally Sealed
8	Unknown
9	Other
0	None
N	Not Applicable (applies to structures with no deck)

ITEM 109 - AVERAGE DAILY TRUCK TRAFFIC **2 DIGIT FIELD**

Code a 2-digit number that shows the percentage of Item 29 - Average Daily Traffic that is truck traffic. Do not include vans, pickup trucks and other light delivery trucks in this percentage.

If this information is not available, an estimate that represents the average percentage (for the category of road carried by the bridge) may be used. Leave blank if Item 29 is not greater than 100.

EXAMPLES:	Code
7% trucks	07
15% trucks	15

ITEM 110 - DESIGNATED NATIONAL NETWORK **1 DIGIT FIELD**

The national network for trucks includes most of the Interstate System and those portions of the Federal-Aid Primary System identified in the Code of Federal Regulations (23 CFR 658). The national network for trucks is available for use by commercial motor vehicles of the dimensions and configurations described in these regulations. For the inventory route, use one of the following codes:

Code	Description
1	The inventory route is part of the national network for trucks.
0	The inventory route is not part of the national network for trucks.

FEDERAL HIGHWAY ADMINISTRATION
NATIONAL TRUCK NETWORK (IDAHO)
AS OF 01/11/2000

INTERSTATE All Interstate Highways (see map at end of SI&A items)

	From	To
US 2	Dover	Sandpoint, Jct, US 95
US 2	Jct, US 95 Bonners Ferry	Montana State Line
I-15B	S. Idaho Falls, IC	US 26 N. IC Idaho Falls
ID 16	Jct, ID 44	Emmett
US 20	Oregon Line	Jct. I-84W Caldwell IC
US 20	Mtn. Home Jct, I-84	Montana Line
US 26	I-84 Bliss	I-15 Blackfoot
ID 28	Jct. ID 33 Mud Lake	Jct. US 93 Salmon
US 30	US 95 Fruitland	ID 72 New Plymouth
US 30	I-15, McCammon	Wyoming Line
ID 33	ID 28 Mud Lake	US 20 Rexburg
ID 44	I-84 Caldwell	ID 55 Eagle
ID 51	Nevada Line	I-84 Mountain Home
ID 53	Washington Line	US-95 Garwood
ID 55	US 95, Marsing	Nampa I-84
ID 55	Jct. US 20/26	Eagle ID 44
ID 75	US 93 Shoshone	Ketchum
ID 87	US 20 N. Macks Inn	Montana Line
US 89	Utah Line	US 30 Montpelier
US 91	Utah Line	Jct. I-15 Virginia IC
US 93	Nevada Line	Arco
US 95	Oregon Line S. of Marsing	Oregon Line Weiser (via US 95 spur)
US 95	Grangeville	Moscow
US 95	I-90 Coeur d'Alene, Jct. I-90	Jct. US 2, Bonners Ferry

ITEM 111 - PIER OR ABUTMENT PROTECTION (FOR NAVIGATION) **1 DIGIT FIELD**

If Item 38 - Navigation Control has been coded 1, use the codes below to indicate the presence and adequacy of pier or abutment protection features such as fenders, dolphins, etc. The condition of the protection devices may be a factor in the overall evaluation of Item 60 - Substructure. If Item 38 - Navigation Control has been coded 0 or N, leave blank to indicate not applicable.

Code	Description
1	Navigation protection not required
2	In place and functioning
3	In place but in a deteriorated condition
4	In place but reevaluation of design suggested
5	None present but reevaluation suggested

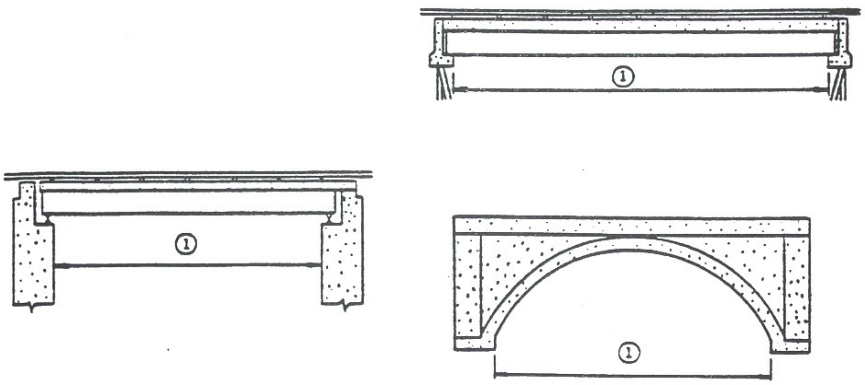
ITEM 112 - NBIS BRIDGE LENGTH **1 DIGIT FIELD**

Does this structure meet or exceed the minimum length specified to be designated as a bridge for National Bridge Inspection Standards purposes?

"...a 'bridge' is defined as a structure including supports erected over a depression or an obstruction, such as water, a highway, or a railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of roadway of more than 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening."

Code	Description
Y	Yes
N	No

EXAMPLES:

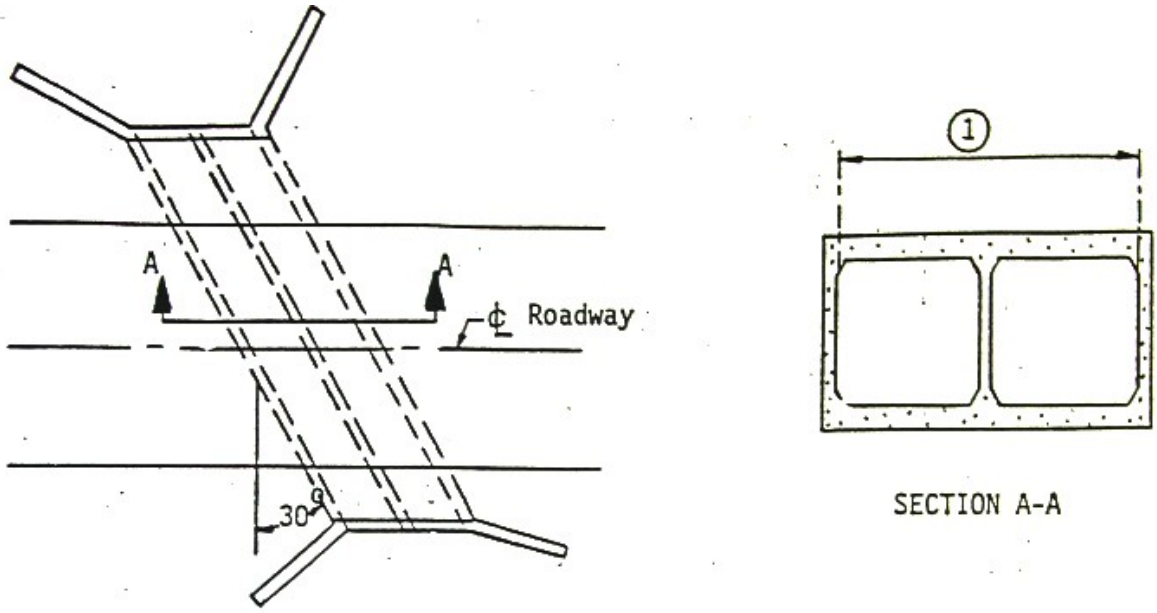


(1) Item 112 - NBIS Bridge Length

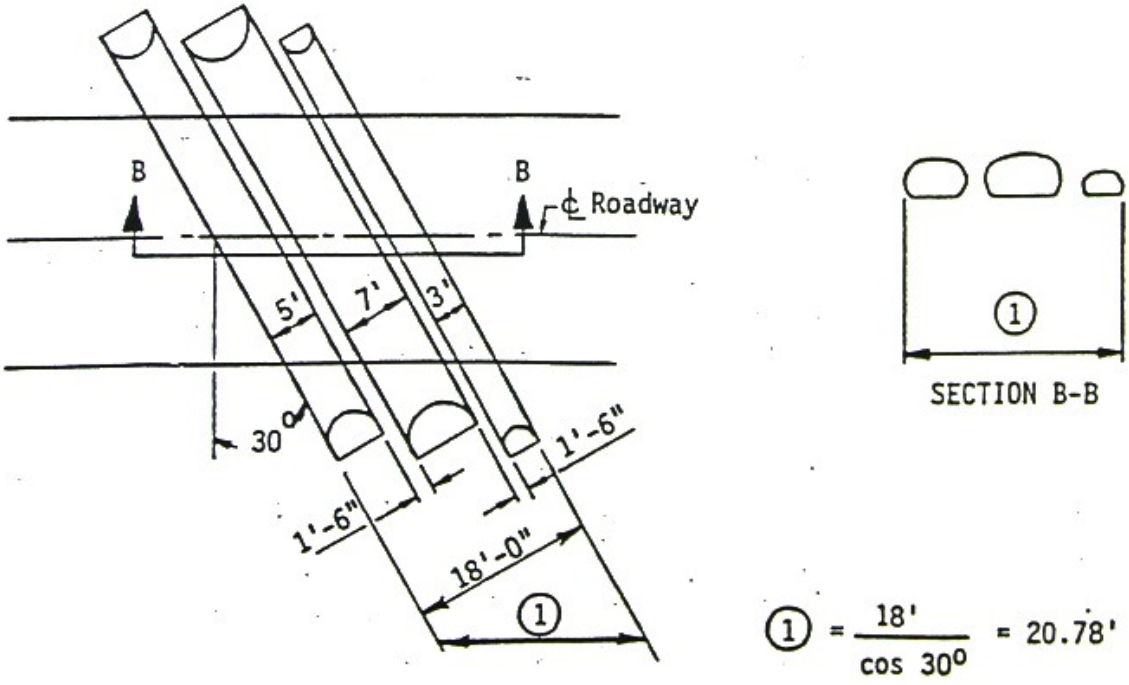
(continued)

ITEM 112 - NBIS BRIDGE LENGTH (cont'd)

EXAMPLES:



(1) Item 112 - NBIS Bridge Length



(1) Item 112 - NBIS Bridge Length

ITEM 113 – SCOUR CRITICAL BRIDGE **1 DIGIT FIELD**

Use a single-digit code as indicated below to identify the current status of the bridge regarding its vulnerability to scour. Evaluations shall be made by hydraulic/geotechnical/structural engineers. Guidance on conducting a scour evaluation is included in the FHWA Technical Advisory T 5140.23 titled, "Evaluating Scour at Bridges."1 Detailed engineering guidance is provided in the Hydraulic Engineering Circular 18 titled "Evaluating Scour at Bridges."2 Whenever a rating factor of 2 or below is determined for this item, the rating factor for Item 60 -- Substructure and other affected items (i.e., load ratings, superstructure rating) should be revised to be consistent with the severity of observed scour and resultant damage to the bridge. A plan of action should be developed for each scour critical bridge (see FHWA Technical Advisory T 5140.23, HEC 18 and HEC 233). A scour critical bridge is one with abutment or pier foundation rated as unstable due to (1) observed scour at the bridge site (rating factor of 2, 1, or 0) or (2) a scour potential as determined from a scour evaluation study (rating factor of 3). It is assumed that the coding of this item has been based on an engineering evaluation, which includes consultation of the NBIS field inspection findings.

Code	Description
N	Bridge not over waterway.
U	Bridge with "unknown" foundation that has not been evaluated for scour. Until risk can be determined, a plan of action should be developed and implemented to reduce the risk to users from a bridge failure during and immediately after a flood event (see HEC 23).
T	Bridge over "tidal" waters that has not been evaluated for scour, but considered low risk. Bridge will be monitored with regular inspection cycle and with appropriate underwater inspections until an evaluation is performed ("Unknown" foundations in "tidal" waters should be coded U.)
9	Bridge foundations (including piles) on dry land well above flood water elevations.
8	Bridge foundations determined to be stable for the assessed or calculated scour condition. Scour is determined to be above top of footing (Example A) by assessment (i.e., bridge foundations are on rock formations that have been determined to resist scour within the service life of the bridge4), by calculation or by installation of properly designed countermeasures (see HEC 23).
7	Countermeasures have been installed to mitigate an existing problem with scour and to reduce the risk of bridge failure during a flood event. Instructions contained in a plan of action have been implemented to reduce the risk to users from a bridge failure during or immediately after a flood event.
6	Scour calculation/evaluation has not been made. (Use only to describe case where bridge has not yet been evaluated for scour potential.)
5	Bridge foundations determined to be stable for assessed or calculated scour condition. Scour is determined to be within the limits of footing or piles (Example B) by assessment (i.e., bridge foundations are on rock formations that have been determined to resist scour within the service life of the bridge), by calculations or by installation of properly designed countermeasures (see HEC 23).
4	Bridge foundations determined to be stable for assessed or calculated scour conditions; field review indicates action is required to protect exposed foundations (see HEC 23).

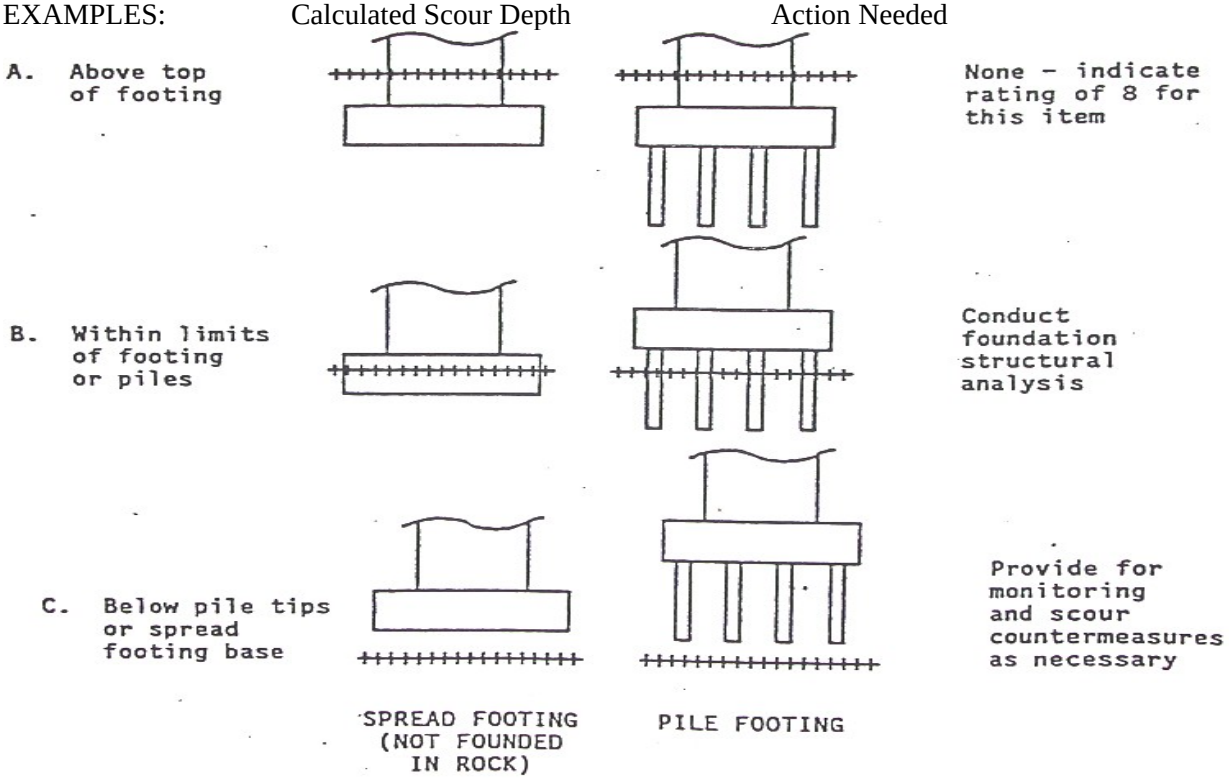
(continued)

ITEM 113 – SCOUR CRITICAL BRIDGES (cont'd)

Code	Description
3	Bridge is scour critical; bridge foundations determined to be unstable for assessed or calculated scour conditions: -Scour within limits of footing or piles. (Example B) -Scour below spread-footing base or pile tips. (Example C)
2	Bridge is scour critical; field review indicates that extensive scour has occurred at bridge foundations, which are determined to be unstable by: -A comparison of calculated scour and observed scour during the bridge inspection, or -An engineering evaluation of the observed scour condition reported by the bridge inspector in Item 60.
1	Bridge is scour critical; field review indicates that failure of piers/abutments is imminent. Bridge is closed to traffic. Failure is imminent based on: -A comparison of calculated and observed scour during the bridge inspection, or -An engineering evaluation of the observed scour condition reported by the bridge inspector in Item 60.
0	Bridge is scour critical. Bridge has failed and is closed to traffic.

1 FHWA Technical Advisory T 5140.23, Evaluating Scour at Bridges, dated October 28, 1991.
2 HEC 18, Evaluating Scour at Bridges, Fourth Edition.
3 HEC 23, Bridge Scour and Stream Instability Countermeasures, Second Edition.
4 FHWA Memorandum "Scourability of Rock Formations," dated July 19, 1991.

EXAMPLES:



++++++++++++ = Calculated scour depth

ITEM 114 - FUTURE AVERAGE DAILY TRAFFIC 6 IGIT FIELD

For all bridges, code the forecasted average daily traffic (ADT) for the inventory route identified in Item 5. This shall be projected at least 17 years but no more than 22 years from the year data is submitted to the NBI. The intent is to provide a basis for a 20-year forecast. This item may be updated anytime, but must be updated when the forecast falls below the 17-year limit. If planning data is not available use the best estimate based on site familiarity.

The future ADT shown must be compatible with the other items coded for the bridge, i.e., twin bridges with an open median, if Items 28 -Lanes On and Under the Structure and 51 - Bridge Roadway Width, Curb-to-Curb are coded for one bridge, then the future ADT must be for one bridge and not the total for the route.

EXAMPLES:	Volume	Code
	540	000540
	15,600	015600
	240,000	240000

ITEM 115 - YEAR OF FUTURE AVERAGE DAILY TRAFFIC 2 DIGIT FIELD

Code the last two digits of the year represented by the future ADT in Item 114. The projected year of future ADT shall be at least 17 years but no more than 22 years from the year data is submitted to the NBI.

EXAMPLE:

	Code
Year of forecasted future ADT is 2008	08

ITEM 116 - NAVIGATION; MINIMUM VERTICAL (XXX.X Feet) 4 DIGIT FIELD
CLEARANCE FOR VERTICAL LIFT BRIDGE

Record and code a three-digit number truncated to the nearest tenth of a foot (with an added decimal point), the minimum vertical clearance imposed at the site as measured above a datum that is specified on a navigation permit issued by a control agency. Code this item only for vertical lift bridges in the dropped or closed position, otherwise leave blank.

Examples:		Code
Vertical Clearance	10.75 feet	010.7
	23.22 feet	023.2

STATE CODING ITEMS

AGENCY STRUCTURE ID NUMBER **5 DIGIT FIELD**

This number is the NBI structure number without the leading zeros.

STRUCTURE NAME **15 DIGIT FIELD**

The AASHTO Bridge Manual requires that the official structure name be coded. Each state codes the structure number according to its own internal processing procedures. When recording and coding for this item and following items, any structure or structures with a closed median should be considered as one structure, not two.

A unique numbering system was developed to provide a systematic bridge name for each structure on the state highway system, county federal-aid secondary system and local county or city streets. The number consists of a seven-digit route code, two blank spaces and a five digit beginning milepoint. The Idaho Transportation Department Bridge Inspection section. Under no circumstances is this structure number to change without prior approval from the Idaho Transportation Department Bridge Inspection Engineer. File numbers assigned in the past were developed under the following format.

First digit - "X" or "S"

"X" was coded when the bridge carried a local county or city road (non-Federal Aid route) and was beyond the right-of-way limits of the state highway system. If the bridge was within state highway system right-of-way limits, no "X" was coded.

"S" was coded for state highway system bridges with a span 20-feet or less and 10-feet or greater between center to center of bearings or clear span of walls (of stifflegs/frames) measured parallel to roadway centerline.

Second through Seventh Digit - Numerical

The route code from the I.T.D. milepoint Index Manual was entered when the bridges were initially coded into the system. Since that original coding, some route designations have changed causing some structure numbers not to match the current route designations.

(continued)

STRUCTURE NAME (cont'd)

Local bridges on routes which were not included in the I.T.D. milepoint Index Manual were numbered as follows;

2nd & 3rd digits	Code as 99
4th digit	Coded as the I.T.D. District number where structure was located. (However, the District numbers were assigned, so the structure numbers do not necessarily match the current I.T.D. District numbers).
5th & 6th digit	Coded as the original county number indicated under Item 3 reduced to two digits. Note: County numbers were changed under the FHWA 1988 coding guide.
7th digit	Coded as zero "0" for all local bridges.
8th & 9th digits	Left blank in <u>all</u> cases to separate the route and milepost codes.
10th thru 15th digits	The milepost code (measured to the nearest one hundredth of a mile) at the beginning point of the bridge was coded. When a milepost for a local bridge that intersected a state highway route was not available, the milepost of the state highway route was used.

EXAMPLES:	<u>ROUTE</u>	<u>CODE</u>
	Structure on I 15 at milepost 048.333	01570A 048.33
	Structure on FAS 3904 at milepost 003.003	93904A 003.00
	Structure on Local County or City street in Elmore county that crosses I 80 at milepost 103.590	993200 103.59
	Structure on county road in Elmore county Crossing Race Creek at milepost 010.001	X993200 10.00

MACS SEGMENT FOR THE INVENTORY ROUTE **6 DIGIT FIELD**

This item is to assist in updating Items 29, 30, 80 and 81 by computerized programming from the "MACS" files. The ITD Planning & Programming section randomly assigns the MACS SEGMENT number and it permanently identifies a particular piece of real estate that contains a roadway.

For the route carried, code the MACS SEGMENT number. The information may be obtained from the ITD Milepost Logs or from the ITD Planning & Programming section.

The six-digit field can only contain numeric values. A blank field is not permitted. The number is right justified with zero (0) in any unused columns.

EXAMPLES:	Code
Segment No. 1020	001020
Segment No. 1540	001540

In cases where the feature carried by the structure is not a roadway identified with a MACS SEGMENT number, enter the appropriate code from the list below into this field.

Facility Carried	Code
Railroad	550000
Pedestrian overpass	660000
Private overpass	770000
Other Unsegmented Roadway	880000

MACS SEGMENT; UNDER **6 DIGIT FIELD**

This item is used to code the MACS SEGMENT number of a roadway passing beneath the structure. Code the twelve-digit field as shown in the example under Item 201. Leave the field blank if no MACS SEGMENT number has been assigned or if there is no roadway beneath the structure.

When more than one segmented roadway is beneath the structure, this field will be used to code the MACS SEGMENT of the major roadway. Additional roadways will be coded under MACS Segment Other.

Priority of the roadways shall be: 1) Interstate 2) Federal Aid Primary 3) Federal Aid Secondary 4) Local.

LOAD RATING ANALYSIS

This item provides a record of the inventory and operating ratings of the typical trucks. The Rating Engineer should determine the ratings.

RECOMMENDED BRIDGE LOAD POSTING

This item, coded by the State Bridge Rating Engineer, is the recommended weight limits for the structure when weight limit signs are required. The field is composed of four segments as described below;

Type 3	_ _ tons
Type 3S2	_ _ tons
Type 3-3	_ _ tons
Max. Single Axle	_ _ . _ tons

Code the values (in tons) recommended for the Type 3, 3S2, and 3-3 trucks. When a maximum axle weight limit is posted, code the value (in tons).

If only a maximum gross weight limit is posted, code the value
(in tons) in the TYPE 3 segment and leave the remaining segments blank.

See ITD Traffic Manual Section 12-167 and/or Manual of Uniform Traffic Control Devices (MUTCD) for signing standards.

RECOMMENDED AND ACTUAL BRIDGE HEIGHT POSTING

Use this field to code the recommended minimum clearance posting. Leave the field blank when there are no height restrictions.
The signs will generally show a height 3 inches less than the actual minimum vertical clearances to allow for bouncing loads and pavement overlays. See ITD Traffic Manual Section 12-167.3 and/or Manual of Uniform Traffic Control Devices for signing standards.

EXAMPLES:	Recommended Posting Height	Code
	15’ 0"	15.00
	Actual Posted Height	**Code**
	14’ 9"	14.75

RECOMMENDED AND ACTUAL BRIDGE WIDTH POSTING

Use this item to code whether or not bridge width posting is required and/or is in place for the structure. See ITD Traffic Manual Section 12-167.1 for State system bridges and the Manual of Uniform Traffic Control Devices for Local/Off system bridges for signing standards. The current standards are as follows:

On-System bridges with a width of 18’ but less than 22’, post "Single Lane Trucks & Buses", and a width of less than 18’ post "Single Lane All Vehicles". Off-System bridges with a width of 16’ but less than 18’ post "Single Lane Trucks & Buses", and a width of less than 16’ post "Single Lane All Vehicles".

A check mark in the respective box represents that posting is recommended or actual posting is in place.

WEARING SURFACE DEPTH
FOR DEAD LOAD

Use this field to code the wearing surface depth that should be used to compute the dead load for Load analysis. Code the depth of material(s) on the structure (in inches to the nearest tenth of an inch) in the appropriate segment(s).

LOAD ANALYSIS STATUS

Code a one-digit field to indicate if the structure needs to be analyzed. Some examples of structures that should be re-analyzed are those with significant addition or reduction of the wearing surface dead load, those which have section loss on load carrying members, or those with reduction in member strength. “U” should NOT be used if bridge design plans are not available for a structure.

A - Reanalysis required (due to change in condition)
B - Analysis Coding required (initial analysis)
N - Analysis Not required (Analysis is completed, no reanalysis required)
U - Analysis Coding cannot be completed for this type of structure. (steel culvert, etc.)

ADMINISTRATIVE JURISDICTION **4 DIGIT FIELD**

A unique four-digit numeric code has been developed to identify the governmental agency having maintenance responsibility of the bridge being inventoried. Provide a four-digit numeric code (with leading zeros) from the following pages indicating the responsible agency.

Coding for Units of Government in Idaho

Code		Code	
0001	I.T.D. DIST 1	0002	I.T.D. DIST 2
0003	I.T.D. DIST 3	0004	I.T.D. DIST 4
0005	I.T.D. DIST 5	0006	I.T.D. DIST 6
0007	STATE PARKS	0008	OTHER STATE AGENCIES
0010	MUNICIPAL	0015	FT.HALL INDIAN
0016	COEUR D' ALENE INDIAN	0017	W. SHOSHONE INDIAN
0020	U.S. NAT'L FOREST	0021	NATIONAL MONUMENT
0022	NAT'L PARK SERVICE	0026	BUREAU RECLAMATION
0028	U.S. SHEEP EXP. STA.	0030	FED BUREAU LAND MGMT
0032	MILITARY RESERVATION	0034	CORPS OF ENGINEERS
0036	E.R.D.A.	0037	PRIVATELY OWNED
0038	IDAHO POWER COMPANY	0039	UTAH POWER & LIGHT
0040	IDAHO STATE PARKS	0041	ID BUREAU LAND MGMT
0042	IDAHO FISH & GAME	0050	OREGON D.O.T.
0051	WASHINGTON D.O.T.		

COUNTY		**HIGHWAY DISTRICT**		**INCORPORATED CITY**	
Code		Code		Code	
0100	ADA	0101	ADA COUNTY	0120	BOISE
				0121	EAGLE
				0122	GARDEN CITY
				0123	KUNA
				0124	MERIDIAN
0300	ADAMS			0320	COUNCIL
				0321	NEW MEADOWS
0500	BANNOCK	0501	DOWNEY-SWAN LAKE	0520	ARIMO
				0521	CHUBBUCK
				0522	DOWNEY
				0523	INKOM
				0524	LAVA HOT SPRINGS
				0525	MCCAMMON
				0526	POCATELLO
0700	BEAR LAKE			0720	BLOOMINGTON
				0721	GEORGETOWN
				0722	MONTPELIER
				0723	PARIS
				0724	ST. CHARLES

COUNTY		HIGHWAY DISTRICT		INCORPORATED CITY	
Code		Code		Code	
0900	BENEWAH	901	PLUMMER-GATEWAY	0920	CHATCOLET
				0921	PLUMMER
				0922	ST. MARIES
				0923	TENSED
1100	BINGHAM			1120	ABERDEEN
				1121	ATOMIC CITY
				1122	BASALT
				1123	BLACKFOOT
				1124	FIRTH
				1125	SHELLEY
1300	BLAINE			1320	BELLEVUE
				1321	HAILEY
				1322	KETCHUM
				1323	SUN VALLEY
				1324	CAREY
1500	BOISE			1520	CROUCH
				1521	HORSESHOE BEND
				1522	IDAHO CITY
				1523	PLACERVILLE
1700	BONNER	1701	SANDPOINT IND.	1720	CLARK FORK
				1721	EAST HOPE
				1722	HOPE
				1723	KOOTENAI
				1724	OLDTOWN
				1725	PONDERAY
				1726	PRIEST RIVER
				1727	SANDPOINT
1900	BONNEVILLE			1920	AMMON
				1921	IDAHO FALLS
				1922	IONA
				1923	IRWIN
				1924	SWAN VALLEY
				1925	UCON
2100	BOUNDARY			2120	BONNERS FERRY
				2121	MOYIE SPRINGS
2300	BUTTE			2320	ARCO
				2321	BUTTE CITY
				2322	MOORE
2500	CAMAS			2520	FAIRFIELD

COUNTY		HIGHWAY DISTRICT		INCORPORATED CITY	
Code		Code		Code	
2700	CANYON	2701	GOLDEN GATE	2720	CALDWELL
		2702	NAMPA HD #1	2721	GREENLEAF
		2703	NOTUS-PARMA	2722	MELBA
		2704	CANYON HD #4	2723	MIDDLETON
				2724	NAMPA
				2725	NOTUS
				2726	PARMA
				2727	WILDER
2900	CARIBOU			2920	BANCROFT
				2921	GRACE
				2922	SODA SPRINGS
3100	CASSIA	3101	ALBION HD	3120	ALBION
		3102	BURLEY HD	3121	BURLEY
		3103	OAKLEY	3122	DECLO
		3104	RAFT RIVER	3123	MALTA
		8304	TWIN FALL (PART)	3124	OAKLEY
3300	CLARK			3320	DUBOIS
				3321	SPENCER
3500	CLEARWATER	3501	CLEARWATER	3520	ELK RIVER
				3521	OROFINO
				3522	PIERCE
				3523	WEIPPE
3700	CUSTER	3701	LOST RIVER	3720	CHALLIS
				3721	CLAYTON
				3722	LOST RIVER
				3723	MACKAY
				3724	STANLEY
3900	ELMORE	3901	GLENNS FERRY HD	3920	GLENNS FERRY
		3902	MOUNTAIN HOME HD	3921	MOUNTAIN HOME
		3903	ATLANTA HD		
4100	FRANKLIN	0501	DOWNEY-SWAN LAKE (PART 1)	4120	CLIFTON
				4121	DAYTON
				4122	FRANKLIN
				4123	OXFORD
				4124	PRESTON
				4125	WESTON
4300	FREMONT			4320	ASHTON
				4321	DRUMMOND
				4322	ISLAND PARK

COUNTY		HIGHWAY DISTRICT		INCORPORATED CITY	
Code		Code		Code	
4300	FREMONT(cont'd)			4323	NEWDALE
				4324	PARKER
				4325	ST. ANTHONY
				4326	TETON
				4327	WARM RIVER
4500	GEM			4520	EMMETT
				4521	PEARL
4700	GOODING	4701	BLISS HD #2	4720	BLISS
		4702	GOODING HD #1	4721	GOODING
		4703	HAGERMAN HD	4722	HAGERMAN
		4704	WENDELL HD	4723	WENDELL
		4705	WESTPOINT		
4900	IDAHO	4901	COTTONWOOD HD	4920	COTTONWOOD
		4902	DEER CREEK HD	4921	FERDINAND
		4903	DOUMECQ HD	4922	GRANGEVILLE
		4904	FENN HD	4923	KOOSKIA
		4905	FERDINAND HD	4924	RIGGINS
		4906	GOOD ROADS HD #2	4925	STITES
		4907	GRANGEVILLE HD	4926	WHITE BIRD
		4908	GREEN CREEK HD		
		4909	KEUTERVILLE HD		
		4910	KIDDER-HARRIS HD		
		4911	UNION INDEPENDENT HD		
		4912	WHITE BIRD HD		
		4913	WINONA HD		
5100	JEFFERSON			5120	HAMER
				5121	HEISE
				5122	LEWISVILLE
				5123	MENAN
				5124	MUD LAKE
				5125	RIGBY
				5126	RIRIE
				5127	ROBERTS
5300	JEROME	5301	HILLSDALE	5320	EDEN
		5302	JEROME	5321	HAZELTON
				5322	JEROME
5500	KOOTENAI	5501	EAST SIDE	5520	ATHOL
		5502	LAKES	5521	COEUR D'ALENE
		5503	POST FALLS	5522	DALTON GARDENS
		5504	WORLEY	5523	FERNAN LAKE
				5524	HARRISON
				5525	HAUSER LAKE

COUNTY		HIGHWAY DISTRICT		INCORPORATED CITY	
Code		Code		Code	
KOOTENAI(cont'd)				5526	HAYDEN
				5527	HAYDEN LAKE
				5528	HUETTER
				5529	POST FALLS
				5530	RATHDRUM
				5531	SPIRIT LAKE
				5532	STATE LINE
				5533	WORLEY
5700	LATAH	5701	NORTH LATAH	5720	BOVILL
		5702	SOUTH LATAH	5721	DEARY
				5722	GENESEE
				5723	JULIAETTA
				5724	KENDRICK
				5725	MOSCOW
				5726	ONAWAY
				5727	POTLATCH
				5728	TROY
5900	LEMHI			5920	LEADORE
				5921	PATTERSON
				5922	SALMON
6100	LEWIS	6101	CENTRAL HD	6120	CRAIGMONT
		6102	EVERGREEN	6121	KAMIAH
		6103	KAMIAH HD	6122	NEZ PERCE
		6104	NORTH	6123	REUBENS
		6105	PRAIRIE	6124	WINCHESTER
		6106	REUBENS		
6300	LINCOLN	6301	DIETRICH	6320	DIETRICH
		6302	KIMAMA	6321	RICHFIELD
		6303	RICHFIELD HD	6322	SHOSHONE
		6304	SHOSHONE HD		
6500	MADISON			6520	REXBURG
				6521	SUGAR CITY
6700	MINIDOKA	6701	MINIDOKA CNTY HD	6720	ACEQUIA
				6721	HEYBURN
				6722	MINIDOKA
				6723	PAUL
				6724	RUPERT
6900	NEZ PERCE	5702	SOUTH LATAH (PART)	6920	CULDESAC
				6921	LAPWAI
				6922	LEWISTON
				6923	PECK

COUNTY		HIGHWAY DISTRICT		INCORPORATED CITY	
Code		Code		Code	
7100	ONEIDA			7120	MALAD
7300	OWYHEE	7301	GEM	7320	GRAND VIEW
		7302	HOMEDALE HD	7321	HOMEDALE
		7303	THREE CREEK	7322	MARSING
7500	PAYETTE	7501	HWY DIST #1	7520	FRUITLAND
				7521	NEW PLYMOUTH
				7522	PAYETTE
7700	POWER	7701	POWER CNTY HD	7720	AMERICAN FALLS
				7721	ROCKLAND
7900	SHOSHONE	7901	CLARKIA BETTER RD	7920	KELLOGG
				7921	MULLAN
				7922	OSBURN
				7923	PINEHURST
				7924	SMELTERVILLE
				7925	WALLACE
				7926	WARDNER
8100	TETON			8120	DRIGGS
				8121	TETONIA
				8122	VICTOR
8300	TWIN FALLS	8301	BUHL HD	8320	BUHL
		8302	FILER HD	8321	CASTLEFORD
		8303	MURTAUGH	8322	FILER
		8304	TWIN FALLS HD	8323	HANSEN
				8324	HOLLISTER
				8325	KIMBERLY
				8326	MURTAUGH
				8327	TWIN FALLS
8500	VALLEY			8520	CASCADE
				8521	DONNELLY
				8522	MCCALL
8700	WASHINGTON	8701	WEISER VALLEY	8720	CAMBRIDGE
				8721	MIDVALE
				8722	WEISER

RAILROADS

9900	BURLINGTON NORTHERN RR	9995	PALOUSE RIVER COULEE CITY RR
9991	CAMAS PRAIRIE RAILNET	9996	ST. MARIES RIVER RR
9992	UNION PACIFIC RR	9997	PEND OREILLE VALLEY RR
9993	EASTERN IDAHO RR	9998	MONTANA RAILLINK
9994	IDAHO NORTHERN PACIFIC RR		

BRIDGE DRAWING NUMBER **6 DIGIT FIELD**

Code a six-digit field (right justified) using the smallest drawing number. If drawing numbers are not available, leave field blank.
Do not code preceding zeros.

EXAMPLES:	Code
Drawing No.14868	14868
Drawing No. 10	10
Drawing No. R 623A	R-623A

PROJECT KEY NUMBER **5 DIGIT FIELD**

Code a five-digit number (right justified) to indicate the project key number. If there are two or more key numbers due to reconstruction by widening, use smallest key number. If key number is not available leave blank.

EQUIPMENT REQUIRED **1 DIGIT FIELD**

Code a one-digit field to indicate equipment required to inspect the bridge

A - SPECIAL EQUIPMENT (i.e. ladder, canary, dye penetrant, lift truck, etc.)
B - BOAT
C - A & B
N - NONE
X - EXTRA PERSON REQUESTED TO PERFORM INSPECTION

INSPECTOR NUMBER **3 DIGIT FIELD**

Code a three-digit field to indicate the inspector doing the bridge inspection. Listed below are the current inspector numbers. Additional numbers will be added as new consultants are contracted.

CONSULTANT INSPECTORS:

030 EDWARDS HOWARD MARTENS
045 KELLER ASSOCIATES
055 JORGENSEN ENGINEERING
065 HOLLADAY ENGINEERING
090 RUEN-YEAGER & ASSOCIATES
095 RALPH KANGAS
115 CH2M HILL
125 MICHAEL BAKER JR., INC.
130 HUGHES ENGINEERING
140 PARSONS BRINCKERHOFF
145 KIM MANNING

ITD INSPECTORS:

900
901 BRIDGE INSPECTION ENGINEER
920 RICK SMITH
923 RAY KELLER
925 JIM STOCKER
950 JIM HOLLAND

INSPECTION AREA **4 DIGIT FIELD**

Code a four-digit field to indicate the inspection area. State inspectors' code District number with 3 preceding zeros. Consultants and County Engineers code area number as assigned on your contract.

EXAMPLES: State inspector inspecting bridges in District 6 code 0006.

Consultant inspecting bridges in Area number 952 code 0952.

IDAHO TRANSPORTATION DEPARTMENT

DESIGNATED NATIONAL TRUCK ROUTES FOR IDAHO

as of January 11, 2000

Legend

DESIGNATED NATIONAL TRUCK ROUTES	
INTERSTATE	
NON–INTERSTATE	
OTHER HIGHWAYS	

BOUNDARY
BONNERS FERRY
Moyie Springs
SANDPOINT
Dover
Kootenai
Ponderay
Oldtown
Priest River
BONNER
Hope & East Hope
Clark Fork
Spirit Lake
KOOTENAI
Rathdrum
Hayden
Hayden Lake
Dalton Gardens
COEUR D'ALENE
Fernan Lake
POST FALLS
Huetter
Smelterville
Kellogg
Wardner
Pinehurst
Osburn
WALLACE
Mullan
Harrison
Worley
ST. MARIES
Plummer
BENEWAH
SHOSHONE
Tensed
LATAH
Troy
Deary
Bovill
Elk River
CLEARWATER
Kendrick
Juliaetta
Genesee
LEWISTON
Lapwai
Culdesac
Reubens
Peck
OROFINO
Pierce
Weippe
NEZ PERCE
Winchester
Craigmont
NEZPERCE
WIS
Kamiah
Kooskia
Ferdinand
Cottonwood
Grangeville
Riggins
White Bird
IDAHO
ADAMS
New Meadows
McCall
Donnelly
COUNCIL
Cambridge
Midvale
CASCADE
WASHINGTON
Weiser
PAYETTE
Fruitland
New Plymouth
GEM
BOISE
Crouch
Placerville
Horseshoe Bend
EMMETT
IDAHO CITY
Parma
Notus
Middleton
Eagle
BOISE
Garden City
CANYON
CALDWELL
Greenleaf
Nampa
Marsing
Melba
Kuna
ADA
ELMORE
Grand View
MURPHY
MOUNTAIN HOME
OWYHEE
Glenns Ferry
Fairfield
CAMAS
Hailey
Sun Valley
Ketchum
Bellevue
BLAINE
GOODING
Gooding
Bliss
SHOSHONE
Wendell
JEROME
Hagerman
Dietrich
Richfield
LINCOLN
MINIDOKA
Minidoka
Acequia
RUPERT
Paul
Rupert
Hazelton
Eden
Buhl
Filer
Kimberly
Hansen
Murtaugh
TWIN FALLS
Hollister
Castleford
BURLEY (Heyburn)
Declo
Albion
Malta
CASSIA
Oakley
Stanley
Clayton
CUSTER
Mackay
Lost River
Moore
ARCO
Butte City
BUTTE
SALMON
Leadore
CHALLIS
LEMHI
Spencer
CLARK
Dubois
Hamer
Mud Lake
JEFFERSON
Roberts
Lewisville
Rigby
Ririe
Ucon
Idaho Falls
Ammon
Iona
Atomic City
Blackfoot
Aberdeen
POCATELLO (Chubbuck)
AMERICAN FALLS
Inkom
Arimo
McCammon
Lava Hot Springs
Rockland
POWER
BANNOCK
Downey
Oxford
Clifton
Dayton
Malad City
ONEIDA
Weston
FRANKLIN
PRESTON
Franklin
Ashton
Parker
ST. ANTHONY
Teton
Sugar City
REXBURG
Newdale
Drummond
Island Park
FREMONT
Warm River
MADISON
Teton
Tetonia
DRIGGS
TETON
Victor
Driggs
Irwin
Swan Valley
BONNEVILLE
Grace
Soda Springs
CARIBOU
Bancroft
Georgetown
BEAR LAKE
Montpelier
Paris
Bloomington
St. Charles

HQGICW209664
01/07/2004

DESIGNATED PILOT PROJECT ROUTES

for increased legal gross weights

IDAHO STATE HIGHWAY SYSTEM

6 /03

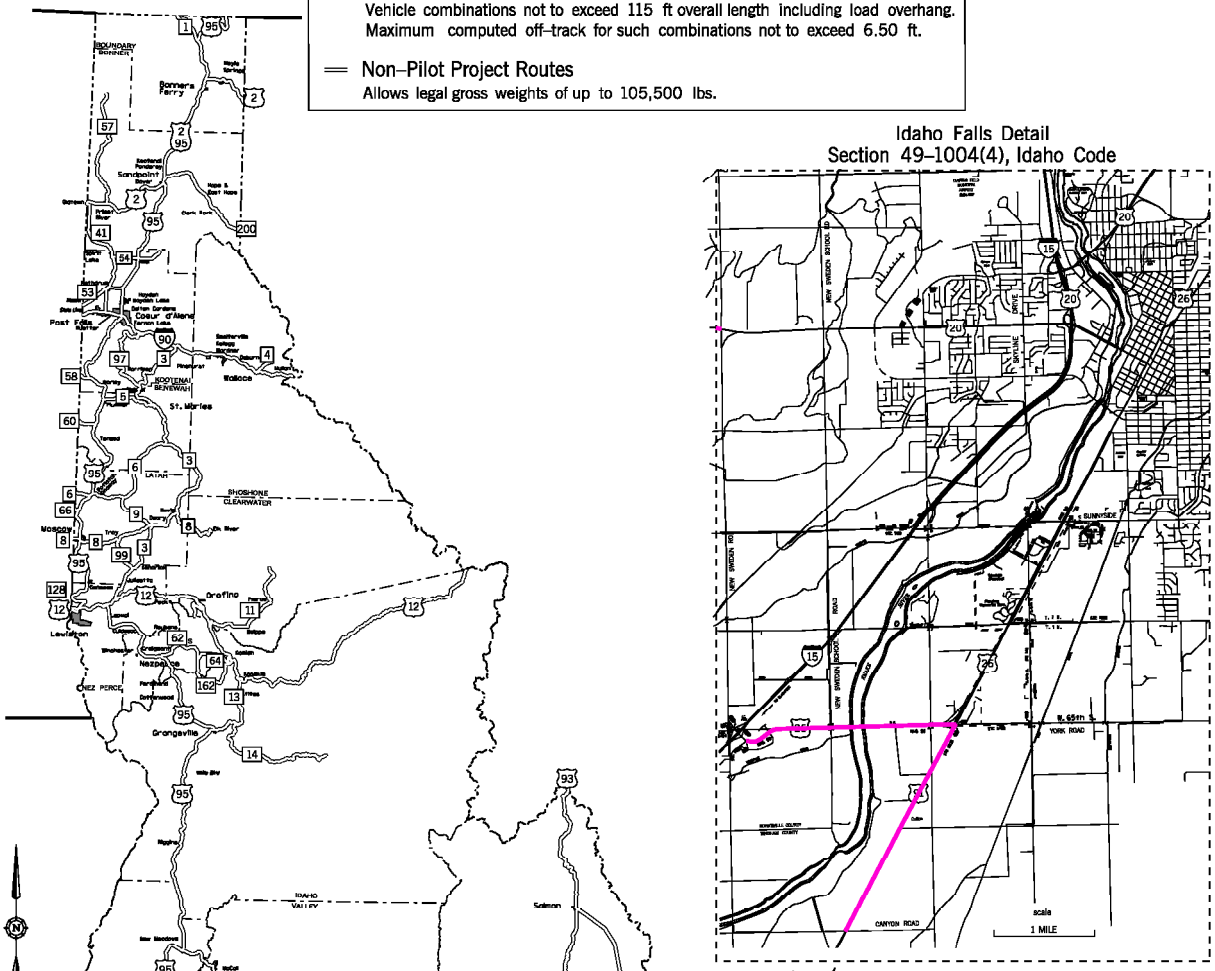
Legend

— Pilot Project Routes

Allows legal gross weights of up to 129,000 lbs by permit only.
Vehicle combinations not to exceed 115 ft overall length including load overhang.
Maximum computed off-track for such combinations not to exceed 6.50 ft.

═ Non-Pilot Project Routes

Allows legal gross weights of up to 105,500 lbs.



HQDCW209564
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05/20/2003

IDAHO TRANSPORTATION DEPARTMENT

BRIDGE INSPECTION SECTION

PONTIS ELEMENT CODING GUIDE

U.S. CUSTOMARY UNITS

JANUARY 2004

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INTRODUCTION

The NBI Rating Method vs. Condition States of Pontis

To achieve the objectives of bridge management, we must look at the inspection process in a fundamentally different way from what has been practiced earlier. There are better ways to present the information gathered from inspections than lumping all of the information into one rating number, the current practice. The NBI rating, despite its advantages for descriptive purposes, has severe limitations that would make models based on that data questionable.

> The major components of a bridge (deck, superstructure, and substructure) consist of many elements and materials. Each of these elements has a unique quantity and behaves differently over time as a function of the load and environment to which they are subjected. While engineers do observe and collect various amounts of information on the components, lumping all that information in one number grossly reduces the value of the information gathered.
>
> Two components with the same rating can have totally different conditions, and totally different actions may be suitable for them. Therefore, just knowing the rating is not sufficient to specify the action required.
>
> Ratings are ordinal measures in the sense that they can show the relative condition of components but this would not allow investigation of tradeoffs for benefits and costs of various actions.
>
> No matter how many guidelines are set and no matter how detailed the definitions for the ratings are made, there will be a considerable amount of subjectivity associated with those ratings, especially since there are so few ratings and so many exceptions. Furthermore, in the absence of a more detailed and systematic procedure, the engineer may deviate from the ratings to assert his/her opinion that an action needs to be taken by opting for a worse rating than what the bridge deserves.

In Pontis, we have overcome those shortcomings by dividing each bridge into its constituent elements. The condition of each element is quantified by a set of measurable parameters. The optimal Maintenance Repair and Rehabilitation (MR&R) and improvement policy for each bridge is found by combining and coordinating recommendations for its elements, and by systematically considering the interaction among the elements.

ORGANIZATION OF PONTIS

Bridge management consists of a series of activities involving information gathering, interpretation, prediction, cost accounting, decision making, budgeting and planning. Pontis consists of a set of interconnected models that address these functions systematically and effectively. The system is also designed to help managers prepare and evaluate a capital program for brides. It is a flexible and interactive tool, which allows user input in every stage of the process and uses mathematical models to help in generating and evaluating alternatives.

The heart of the system is a set of optimization models, which derive their information requirements from predictive, cost and feasible action models. Engineering judgment and managerial considerations are also inputs to the model. The outputs are action plans for improvement and MR&R, incorporated with schedules and budget requirements. An updating model provides a powerful tool to adapt the deterioration probabilities, as new data becomes available over the years. Thus, while Pontis will start by using engineering judgment as the basis for its predictive model, it will ‘learn’ from new data and automatically adjust its predictive equations over time.

The development of Pontis also recognizes that Departments of Transportation cannot immediately commit the resources necessary to develop a completely new array of bridge data. Consequently Pontis is designed so that the system will operate using current NBI data. With that level of data, the capabilities of Pontis are rather constrained and agencies will eventually want to collect the kind of data that Pontis can use in a more precise fashion. This design feature is provided as a transition between system capabilities that will result when Pontis is fully implemented.

DECK OR SLAB

Element: Number	Description		Units	NBI#
12	**Concrete Deck - Bare**	**SF**	**58**	
38	**Concrete Slab - Bare**	**SF**	**59**	

Condition State 1: The deck shows little or no deterioration. There are no spalls/delaminations in the deck surfaces. Light wear.

Condition State 2: Repaired areas and/or spalls/delaminations exist in the deck surface. The combined area of distress is **10%** or less of the deck area. Light surface scaling with wear.

Condition State 3: Repaired areas and/or spalls/delaminations exist in the deck surface. The combined area of distress is more than **10%** but less than **25%** of the total deck area. Chloride contents between 1.5 and 2.0 pounds per cubic yard. Medium surface scaling.

Condition State 4: Repaired areas and/or spalls/delaminations exist in the deck surface. The combined area of distress is more than **25%** but less than **50%** of the total deck area. Chloride content over 2.0 pounds per cubic yard. Heavy surface scaling.

Condition State 5: Repaired areas and/or spalls/delaminations exist. The combined area of distress is more than **50%** of the total deck area. Severe scaling.

Element: Number	Description	Units	NBI#
13	**Concrete Deck-Unprotected-AC Overlay**	**SF**	**58**
39	**Concrete Slab-Unprotected-AC Overlay**	**SF**	**59**
14	**Concrete Deck-Protected-AC Overlay**	**SF**	**58**
40	**Concrete Slab-Protected-AC Overlay**	**SF**	**59**

Condition State 1: The surfacing on the deck has no repaired areas and there are no potholes in this surfacing. Light wear.

Condition State 2: Repaired areas and/or potholes or impending potholes exist. The combined area is **10%** or less of the deck area. Light surface scaling.

Condition State 3: Repaired areas and/or potholes or impending potholes exits. The combined area is more than **10%** but less than **25%** of the total deck area. Chloride content between 1.5 and 2.0 pounds per cubic yard. Medium surface scaling.

Condition State 4: Repaired areas and/or potholes or impending potholes exist. The combined area is more than **25%** but less than **50%** of the total deck area. Chloride content over 2.0 pounds per cubic yard. Heavy surface scaling.

Condition State 5: Repaired areas and/or potholes or impending potholes exist. The combined area is more than **50%** of the total deck area. Severe scaling.

NOTES:

When coding the **deck** or **slab** element, although units are square feet, you must put **ALL 100%** into the appropriate condition state. If you know the chloride content of a deck or slab, code the appropriate condition state.

DECK OR SLAB

Element: Number	Description	Units	NBI#
	Protected w/Thin (<1") Overlay		
18	**Concrete Deck-Protected-Thin Overlay**	**SF**	**58**
44	**Concrete Slab-Protected-Thin Overlay**	**SF**	**59**
	Protected w/Rigid (>1") Overlay		
22	**Concrete Deck-Protected-Rigid Overlay**	**SF**	**58**
48	**Concrete Slab-Protected-Rigid Overlay**	**SF**	**59**

Condition State 1: The surface of the deck has no repaired areas and there are no spalls/delaminations in the deck surfaces. No wear-out is visible. Light wear.

Condition State 2: Repaired areas and/or spalls/delaminations exist in the deck surface. The combined area of distress is **10%** or less of the deck area. Light surface scaling, with wear.

Condition State 3: Repaired areas and/or spalls/delaminations exist in the deck surface. The combined area of distress is more than **10%** but less than **25%** of the total deck area. Chloride content between 1.5 and 2.0 pounds per cubic yard. Medium surface scaling.

Condition State 4: Repaired areas and/or spalls/delaminations exist in the deck surface. The combined area of distress is more than **25%** but less than **50%** of the total deck area. Chloride content over 2.0 pounds per cubic yard. Heavy surface scaling.

Condition State 5: Repaired areas and/or spalls/delaminations exist. The combined area of distress is more than **50%** of the total deck area. Severe scaling.

NOTES:

When coding the **deck** or **slab** element, although units are square feet, you must put **ALL 100%** into the appropriate condition state. If you know the chloride content of a deck or slab, code the appropriate condition state.

DECK OR SLAB

Element:

Number	Description	Units	NBI#
26	**Concrete Deck-Protected w/Coated Bars**	**SF**	**58**
52	**Concrete Slab-Protected w/Coated Bars**	**SF**	**59**
27	**Concrete Deck-Protected w/Cathodic**	**SF**	**58**
53	**Concrete Slab-Protected w/Cathodic**	**SF**	**59**

Condition State 1: The deck shows little or no deterioration. There are no spalls/delaminations in the deck surfaces. Light wear.

Condition State 2: Repaired areas and/or spalls/delaminations exist in the deck surface. The combined area of distress is **10%** or less of the deck area. Light surface scaling, with wear.

Condition State 3: Repaired areas and/or spalls/delaminations exist in the deck surface. The combined area of distress is more than **10%** but less than **25%** of the total deck area. Chloride content between 1.5 and 2.0 pounds per cubic yard. Medium surface scaling.

Condition State 4: Repaired areas and/or spalls/delaminations exist in the deck surface. The combined area of distress is more than **25%** but less than **50%** of the total deck area. Chloride content over 2.0 pounds per cubic yard. Heavy surface scaling.

Condition State 5: Repaired areas and/or spalls/delaminations exist. The combined area of distress is more than **50%** of the total deck area. Severe scaling.

NOTES:

When coding the **deck** or **slab** element, although units are square feet, you must put **ALL 100%** into the appropriate condition state. If you know the chloride content of a deck or slab, code the appropriate condition state.

DECK OR SLAB

Element:

Number	Description	Units	NBI#
28	**Steel Deck - Open Grid**	**SF**	**58**

Condition State 1: There is no corrosion. The paint system, if any, is sound. The connectors (welds, rivets, etc.) are sound.

Condition State 2: There is little or no corrosion. The paint system, if any, may be showing early signs of distress. The connectors are still sound.

Condition State 3: Surface or freckled rust has formed. The paint system is no longer fully effective. There is no loss of section. The connectors may be starting to show signs of distress - cracked welds or broken rivets.

Condition State 4: Corrosion is moderate. Surface pitting may be present but any section loss is incidental. Numerous connectors are failing at scattered locations. The strength or serviceability of the section is not yet affected.

Condition State 5: Corrosion is advanced. Numerous connectors have failed. Section loss and/or connectivity is sufficient to warrant analysis to ascertain the impact on the ultimate strength and/or serviceability of either the element or the bridge.

Element:

Number	Description	Units	NBI#
29	**Steel Deck - Concrete Filled Grid**	**SF**	**58**

Condition State 1: There is no corrosion. The paint system, if any, is sound. The connectors (welds, rivets, etc.) are sound. The concrete filler is sound.

Condition State 2: There is little or no corrosion. The paint system, if any, may be showing early signs of distress. The connectors are still sound. The concrete filler is sound.

Condition State 3: Surface or freckled rust has formed. The paint system is no longer fully effective. There is no loss of section. The connectors may be starting to show signs of distress - cracked welds or broken rivets. The concrete filler may have broken out at scattered locations.

Condition State 4: Surface or freckled rust has formed. The paint system is no longer fully effective. There is no loss of section. Numerous connectors are failing at scattered locations. Small areas of concrete are missing.

Condition State 5: Corrosion is advanced. Numerous connectors have failed. Section loss and/or connectivity is sufficient to warrant analysis to ascertain the impact on the ultimate strength and/or serviceability of either the element or the bridge.

NOTES:

When coding the **deck** or **slab** element, although units are square feet, you must put **ALL 100%** into the appropriate condition state.

DECK OR SLAB

Element:

Number	Description	Units	NBI#
30	**Deck - Corrugated/Orthotropic/Etc.**	**SF**	**58**

Condition State 1: There is no evidence of corrosion and paint systems are functioning as intended to protect the metal surface. The surfacing, if any, on the deck has no repaired areas and there are no potholes.

Condition State 2: There is little or no corrosion. Any paint system may be showing early signs of distress. Minor cracking or potholes may exist in the surfacing.

Condition State 3: Surface or freckled rust has formed. There is no loss of section. Potholes exist in the surfacing and there may be significant cracking.

Condition State 4: The paint system has failed. Surface pitting may be present but any section loss is incidental. Potholes may be large and expose the metal decking.

Condition State 5: Corrosion is advanced. Section loss is sufficient to warrant analysis to ascertain the impact on the ultimate strength and/or serviceability of either the element or the bridge. The surfacing has failed.

NOTES:

When coding the **deck** or **slab** element, although units are square feet, you must put **ALL 100%** into the appropriate condition state.

DECK OR SLAB

Element: Number	Description	Units	NBI#
31	**Timber Deck - Bare**	**SF**	**58**
54	**Timber Slab - Bare**	**SF**	**59**

Condition State 1: Investigation indicates no decay. There may be cracks, splits and checks having no effect on strength or serviceability.

Condition State 2: Decay, insect infestation, splitting, cracking or crushing may exist but doesn't affect the strength of serviceability of the bridge.

Condition State 3: Decay, insect infestation, splitting, cracking or crushing has produced loss of strength of the element but not of sufficient magnitude to affect the serviceability of the bridge.

Condition State 4: Advanced deterioration. Decay, insect infestation, splits, cracks or crushing has produced loss of strength that affects the serviceability of the bridge.

Element: Number	Description	Units	NBI#
32	**Timber Deck - with AC or Granular Overlay**	**SF**	**58**
55	**Timber Slab - with AC or Granular Overlay**	**SF**	**59**

Condition State :1 Investigation indicates no decay. There may be cracks, splits and checks having no effect on strength or serviceability. There are no potholes in the surfacing.

Condition State 2: Decay, insect infestation, splitting, cracking or crushing may exist but none is sufficiently advanced to affect the serviceability of the bridge. There may be minor potholes or impending potholes in the surfacing.

Condition State 3: Decay, insect infestation, splitting, cracking or crushing has produced loss of strength of the element but not of sufficient magnitude to affect the serviceability of the bridge. There are major potholes in the surfacing, resulting from the localized disintegration of the timber.

Condition State 4: Advanced deterioration. Decay, insect infestation, splits, cracks or crushing has produced loss of strength that affects the serviceability of the bridge.

NOTES:

When coding the **deck** or **slab** element, although units are square feet, you must put **ALL 100%** into the appropriate condition state.

UNPAINTED STEEL ELEMENTS

Element: Number	Description	Units	NBI#
101	**Closed Web/Box Girder**	**LF**	**59**
106	**Open Girder**	**LF**	**59**
112	**Stringer**	**LF**	**59**
120	**Truss Bottom Chord**	**LF**	**59**
125	**Thru Truss Excluding Bottom Chord**	**LF**	**59**
130	**Deck Truss Excluding Bottom Chord**	**LF**	**59**
140	**Arch**	**LF**	**59**
151	**Floor Beam**	**LF**	**59**
160	**Pin and/or Pin and Hanger Assembly**	**EA**	**59**
201	**Column or Pile Extension**	**EA**	**60**
225	**Submerged Pile**	**EA**	**60**
230	**Pier or Abutment Cap**	**LF**	**60**

Condition State 1: There is little or no corrosion of the unpainted steel. The weathering steel is coating uniformly and remains in excellent condition. The connectors (welds, rivets, etc.) are sound.

Condition State 2: Surface rust, surface pitting, has formed on the unpainted steel. The weathering steel has not corroded beyond design limits. Weathering steel color is yellow orange to light brown.

Condition State 3: Steel has measurable section loss due to corrosion but does not warrant structural analysis. Weathering steel is dark brown or black.

Condition State 4: Corrosion is advanced. Section loss is sufficient to warrant analysis to ascertain the impact on the ultimate strength and/or serviceability of either the element or the bridge.

NOTES: Do not double up on elements. Example, if a pile is half submerged and half dry, code only one element, "225-submerged pile" for the entire pile. If a pile is constantly dry code "201-Column or pile extension"

If construction plans are available, code all submerged elements.

PAINTED STEEL ELEMENTS

Element: Number	Description	Units	NBI#
102	**Closed Web/Box Girder**	**LF**	**59**
107	**Open Girder**	**LF**	**59**
113	**Stringer**	**LF**	**59**
121	**Truss Bottom Chord**	**LF**	**59**
126	**Thru Truss Excluding Bottom Chord**	**LF**	**59**
131	**Deck Truss Excluding Bottom Chord**	**LF**	**59**
141	**Arch**	**LF**	**59**
152	**Floor Beam**	**LF**	**59**
161	**Pin and/or Pin and Hanger Assembly**	**EA**	**59**
202	**Column or Pile Extension**	**EA**	**60**
224	**Submerged Pile**	**EA**	**60**
231	**Pier or Abutment Cap**	**LF**	**60**

Condition State 1: There is no corrosion and the paint system is sound and functioning as intended to protect the metal surface.

Condition State 2: There is little or no active corrosion. The paint system may be chalking, peeling, curling or showing other early evidence of paint system distress but there is no exposure of metal.

Condition State :3 Surface or freckled rust has formed or is forming. The paint system is no longer effective. There may be exposed metal but there is no active corrosion that is causing loss of section.

Condition State 4: The paint system has failed. Surface pitting may be present but any section loss due to active corrosion does not yet warrant structural analysis of either the element or the bridge.

Condition State 5: Corrosion is advanced. Section loss is sufficient to warrant analysis to ascertain the impact on the ultimate strength and/or serviceability of either the element or the bridge.

NOTES: Do not double up on elements. Example, if a pile is half submerged and half dry, code only one element, "224-submerged pile" for the entire pile. If a pile is constantly dry code "202-Column or pile extension"

If construction plans are available, code all submerged elements.

P/S CONCRETE ELEMENTS

Element: Number	Description	Units	NBI#
104	**Closed Web/Box Girder**	**LF**	**59**
109	**Open Girder**	**LF**	**59**
115	**Stringer**	**LF**	**59**
143	**Arch**	**LF**	**59**
154	**Floor Beam**	**LF**	**59**
204	**Column or Pile Extension**	**EA**	**60**
226	**Submerged Pile**	**EA**	**60**
233	**Pier or Abutment Cap**	**LF**	**60**

Condition State 1: The element shows little or no deterioration. There may be discoloration, efflorescence, and/or superficial cracking that has little or no affect on strength and/or serviceability.

Condition State 2: Minor cracks and spalls may be present and there may be minor exposure of non-prestressed reinforcing with no evidence of corrosion. There is no exposure of the prestressed system.

Condition State 3: Some delamination and/or spalls may be present. There may be minor exposure but no deterioration of the prestressed system. Corrosion of non-prestressed reinforcement may be present but loss of section is incidental and does not significantly affect the strength and/or serviceability of either the element or the bridge.

Condition State 4: Delamination, spalls and corrosion of non-prestressed reinforcement are prevalent. There may also be exposure and deterioration of the prestressed system (manifested by loss of bond, broken strands or wire, failed anchorages, etc). There is sufficient concern to warrant an analysis to ascertain the impact on the strength and/or serviceability of either the element or the bridge.

NOTES: Do not double up on elements. Example, if a pile is half submerged and half dry, code only one element, "226-submerged pile" for the entire pile. If a pile is constantly dry code "204-Column or pile extension"

If construction plans are available, code all submerged elements.

REINFORCED CONCRETE ELEMENTS

Element: Number	Description	Units	NBI#
105	**Closed Web/Box Girder**	**LF**	**59**
110	**Open Girder**	**LF**	**59**
116	**Stringer**	**LF**	**59**
144	**Arch**	**LF**	**59**
155	**Floor Beam**	**LF**	**59**
205	**Column or Pile Extension**	**EA**	**60**
209	**Wingwall**	**EA**	**60**
210	**Pier Wall**	**LF**	**60**
215	**Abutment**	**LF**	**60**
218	**Submerged Abutment**	**LF**	**60**
219	**Submerged Pierwall**	**LF**	**60**
220	**Submerged Pile Cap/Footing**	**EA**	**60**
227	**Submerged Pile**	**EA**	**60**
234	**Pier or Abutment Cap**	**LF**	**60**

Condition State 1: The element shows little or no deterioration. There may be discoloration, efflorescence, and/or superficial cracking that has little or no affect on strength and/or serviceability.

Condition State 2: Hairline cracks and spalls may be present. There is little or no exposed reinforcing or surface evidence of rebar corrosion. Generally reinforcing steel is unaffected

Condition State 3: Some delamination and/or spalls may be present and some reinforcing may be exposed. Corrosion of rebar may be present but loss of section is incidental and does not significantly affect the strength and/or serviceability of either the element or the bridge.

Condition State 4: Advanced deterioration. Corrosion of reinforcement and/or loss of concrete section is sufficient to warrant analysis to ascertain the impact on the strength and/or serviceability of either the element or the bridge.

NOTES: Do not double up on elements. Example, if a pile is half submerged and half dry, code only one element, "227-submerged pile" for the entire pile. If a pile is constantly dry code "205-Column or pile extension"

If construction plans are available, code all submerged elements.

TIMBER ELEMENTS

Element: Number	Description	Units	NBI#
111	**Open Girder**	**LF**	**59**
117	**Stringer**	**LF**	**59**
135	**Truss/Arch**	**LF**	**59**
156	**Floor Beam**	**LF**	**59**
206	**Column or Pile Extension**	**EA**	**60**
208	**Wingwall**	**EA**	**60**
216	**Abutment**	**LF**	**60**
228	**Submerged Pile**	**EA**	**60**
235	**Pier or Abutment Cap**	**LF**	**60**

Condition State 1: Investigation indicates no decay. There may be superficial cracks, splits and checks having no affect on strength or serviceability.

Condition State 2: Decay, insect infestation/marine borer infestation, splitting, cracking, checking or crushing may exist but none is sufficiently advanced to affect serviceability of the element.

Condition State 3: Decay, insect infestation, splitting, cracking or crushing has produced loss of strength of the element but not of a sufficient magnitude to affect the serviceability of the bridge.

Condition State 4: Advanced deterioration. Decay, insect infestation, splits, cracks or crushing has produced loss of strength that affects the serviceability of the bridge.

NOTES: Do not double up on elements. Example, if a pile is half submerged and half dry, code only one element, "228-submerged pile" for the entire pile. If a pile is constantly dry code "206-Column or pile extension"

If construction plans are available, code all submerged elements.

CABLES

Element:

Number	Description		Units	NBI#
146	**Other - Cable**	**EA**	**59**	

Condition State 1: There is little or no corrosion of the unpainted steel. Paint system, if present, is sound and function as intended to protect the metal surface. Strand and anchor sockets show no signs of distress.

Condition State 2: Surface rust has formed or is forming. Paint system, if present, is peeling and is no longer effective. Strand and anchor sockets show no signs of distress.

Condition State 3: The paint system, if present, has failed. Surface pitting may be present but any section loss is incidental and does not affect the strength or serviceability of either the element or the bridge. Cable banding, if any may show some loosening or slipping. Cable anchor devices may be loosening.

Condition State 4: Corrosion is advanced. Cable strands or wires may be broken or severely abraded. Anchors may show signs of slippage. Section loss or other deterioration is sufficient to warrant analysis for strength and/or serviceability of both the element and the bridge.

NOTES:

CULVERTS

Element: Number	Description	Units	NBI#
240	**Steel-Culvert**	**LF**	**60**

Condition State 1: The element shows little or no deterioration. Some discoloration may exist but there is no metal pitting.

Condition State 2: There may be minor or moderate corrosion and pitting, especially at the barrel invert. Little or no distortion exists.

Condition State 3: Significant corrosion, deep pitting or some holes in the invert may exist. Significant scour or erosion may be affecting structural integrity. Minor to major distortion and deflection may exist. There is little or no roadway settlement.

Condition State 4: Major corrosion. Extreme pitting or holes in the barrel may exist. Major distortion, deflection, or settlement may be evident. Minor to major roadway settlement may be evident.

Element: Number	Description	Units	NBI#
241	**Reinforced Concrete- Culvert**	**LF**	**60**

Condition State 1: Superficial cracks and spalls may be present, but there is no exposed reinforcing or evidence of rebar corrosion. There is little or no deterioration or separation of joints.

Condition State 2: Deterioration, minor chloride contamination, minor cracking and/or leaching may have begun. There may be deterioration and separation of joints.

Condition State 3: There may be moderate to major deterioration, extensive cracking and/or leaching and large areas of spalls. Minor to moderate distortion, settlement, or misalignment may have occurred. There may be considerable deterioration and separation of joints and/or minor roadway settlement.

Condition State 4 Major deterioration, spalling, cracking, major distortion, deflection, settlement, or misalignment of the barrel may be in evidence. Major separation of joints may have occurred. Holes may exist in floors and walls. Settlement of roadway may have occurred.

NOTES:

CULVERTS

Element: Number	Description	Units	NBI#
242	**Timber - Culvert**	**LF**	**60**

Condition State 1: The timber and fasteners are in sound condition.

Condition State 2: There may be minor decay and weathering. Corrosion at fasteners and connections may have begun. There is little or no distortion and/or deflection.

Condition State 3: There may be significant decay, weathering and warped or broken timbers. Significant decay and corrosion at fasteners and connections may be evident. Minor to moderate distortion of the culvert may exist. There is little or no roadway settlement.

Condition State 4: There may be major decay and many warped, broken or missing timbers. There is major decay and corrosion at fasteners and connections. Major distortion or deflection of the culvert may exist. There may be minor to major roadway settlement.

Element: Number	Description	Units	NBI#
243	**Other - Culvert**	**LF**	**60**

Condition State 1: There is little or no deterioration. Surface defects only are in evidence. There are no scour or misalignment problems.

Condition State 2: There may be minor deterioration, cracking and misalignment.

Condition State 3: Moderate to major deterioration and cracking and/or minor to moderate distortion or deflection has occurred. There is little or no roadway settlement.

Condition State 4: Major distortion, deflection, settlement or misalignment and/or major deterioration affecting structural integrity may have occurred. Settlement of roadway has occurred.

NOTES:

EXPANSION JOINTS

Element:

Number	Description	Units	NBI#
300	**Strip Seal Expansion Joint**	**LF**	**58**

Condition State 1: There is no leakage at any point along the joint. Gland is secure and has no defects. Debris in joint is not causing any problems.

Condition State 2: Minor leakage due to punctured or ripped joint, or due to gland pulled out of extrusion. Significant debris in joint.

Condition State 3: Major deterioration of gland, concrete spalled at joint, major leakage along entire joint.

Element:

Number	Description	Units	NBI#
301	**Pourable Joint Seal**	**LF**	**58**

This element defines those joints filled with a pourable sealant.

Condition State 1: The element shows minimal deterioration. Adhesion is sound with no signs of leakage. There are no cohesion cracks. The adjacent deck and/or header are sound.

Condition State 2: Minor adhesion and/or cohesion failures may be present. Minor leakage may show underneath. Joint may be slightly impacted with debris. Minor spalls in deck and/or headers may be present adjacent to joint.

Condition State 3: Adhesion and/or cohesion failures are large enough to cause leakage problems. Joint may be heavily impacted with debris and/or stones. Adjacent deck may be spalled.

Element:

Number	Description	Units	NBI#
302	**Compression Joint Seal**	**LF**	**58**

Condition State 1: The element shows minimal deterioration. Adhesion is sound with no signs of leakage. There are no cohesion cracks. The adjacent deck and/or header are sound.

Condition State 2: There may be small adhesion failures. The seal may show signs of abrasion or minor tearing. Minor spalls in the deck and/or headers may be present.

Condition State 3: Adhesion failures may be prevalent with the seal possibly showing signs of failure from abrasion or tearing. Significant spalls may be present in the deck and/or headers adjacent to the seal.

NOTES:

EXPANSION JOINTS

Element:

Number	Description	Units	NBI#
303	**Assembly Joint Seal**	**LF**	**58**

Condition State 1: The element shows minimal deterioration. The anchors are tight. There are no broken welds. The adjacent deck is sound. The paint system, if it is present, is sound and functioning as intended to protect the metal.

Condition State 2: The paint system, if present, may show some corrosion with slight pitting. There may be minor weld cracking. The adjacent deck may show signs of anchors loosening. There may be minor spalling of the anchorage concrete.

Condition State 3: Corrosion is advanced. The assembly may be loose because of anchorage failure. There may be deck spalling adjacent to the assembly.

Element:

Number	Description	Units	NBI#
304	**Open Expansion Joint**	**LF**	**58**

Condition State 1: The element shows minimal deterioration. Joint armor, if present, is secure. There are no significant joint spalls.

Condition State 2: There may be deck cracking indicating armor anchor loosening. Spalling at joint edges or adjacent to armor may have begun. There may be corrosion on joint armor.

Condition State 3: Advanced corrosion of joint armor. There may be large spalls at the joint edges or adjacent to armor. Armor anchors are loose.

NOTES:

BEARINGS

Element: Number	Description	Units	NBI#
310	**Elastomeric Bearing**	**EA**	**59**

Condition State 1: The element shows little or no deterioration. Shear deformations are correct for existing temperatures.

Condition State 2: Minor cracking, splitting or other deterioration may be present. Shear deformation may be slightly excessive. Strength and/or serviceability are not affected.

Condition State 3: Advanced deterioration. Shear deformations may be excessive. Top and bottom surfaces may no longer be parallel. Loss of bearing may be imminent.

Element: Number	Description	Units	NBI#
311	**Moveable Bearing**	**EA**	**59**

Condition State 1: The element shows little or no deterioration. If a paint system is present, it is sound and functioning as intended to protect the metal. The bearing has minimal debris and corrosion. Vertical and horizontal alignment is within limits. Bearing support member is sound. Any lubrication system is functioning properly.

Condition State 2: The paint system, if present, may show some corrosion with minor pitting. The assemblies may have moved enough to cause minor cracking in the supporting concrete. Debris buildup is affecting bearing movement. Bearing alignment is still tolerable.

Condition State 3: Corrosion is advanced. There may be loss of section of the supporting member sufficient to warrant supplemental supports or load restrictions. Bearing alignment may be beyond tolerable limits. Shear keys may have failed. The lubrication system, if any, may have failed.

Element: Number	Description	Units	NBI#
312	**Enclosed/Concealed Bearing/System**	**EA**	**59**

Condition State 1: The element shows little or no deterioration. There are no vertical or horizontal offsets. There is no cracking of support members. The supported member is stable under traffic.

Condition State 2: Both vertical and horizontal offsets are within the capability of the bearings and are not yet significant. The supported member may exhibit minimal vertical movement under traffic. Cracking of support members is not yet significant. There may be insignificant reduction of bearing due to superstructure shortening.

Condition State 3: Vertical and/or horizontal offsets are significant indicating bearing failures. There may be significant vertical movement under traffic. Cracking of the support members may be significant. There may be significant reduction of bearing due to superstructure shortening.

NOTES:

BEARINGS

Element: Number	Description	Units	NBI#
313	**Fixed Bearing**	**EA**	**59**

Condition State 1: The element shows little or no deterioration. If a paint system is present, it is sound and functioning as intended to protect the metal. The bearing has minimal debris and corrosion. Vertical and horizontal alignment is within limits. Bearing support member is sound. Any lubrication system is functioning properly.

Condition State 2: The paint system, if present, may show some corrosion with minor pitting. The assemblies may have moved enough to cause minor cracking in the supporting concrete.

Condition State 3: Corrosion is advanced. There may be loss of section of the supporting member sufficient to warrant supplemental supports or load restrictions. Bearing alignment may be beyond tolerable limits. Shear keys may have failed. The lubrication system, if any, may have failed.

Element: Number	Description	Units	NBI#
314	**Pot Bearing**	**EA**	**59**
315	**Disk Bearing**	**EA**	**59**

Condition State 1: The element shows little or no deterioration. The paint or other anti-corrosion system is sound and functioning as intended to protect the metal. The bearing has minimal debris and corrosion. Vertical and horizontal alignment is within limits. Bearing support member is sound. Any lubrication system is functioning properly.

Condition State 2: The anti-corrosion system may show some corrosion with minor pitting. Debris buildup is affecting bearing movement. Bearing alignment and load carrying capacity is still tolerable.

Condition State 3: Corrosion is advanced. Bearing alignment and load carrying capacity may be beyond limits. Shear keys and the lubrication system, if any, may have failed. Elastomer (Disk Bearing) may be actively extruding from the device.

NOTES:

APPROACH SLABS

Element:

Number	Description	Units	NBI#
320	**P/S Concrete - Approach Slab**	**EA**	**59**
321	**Reinforced Concrete - Approach Slab**	**EA**	**59**

Condition State 1: The slab has not settled and shows no sign of deterioration other than superficial surface cracks.

Condition State 2: Minor cracking, spalls may be present but they do not affect the ability of the slab to carry traffic. Settlement may be occurring, which increases the traffic impact on the bridge.

Condition State 3: Cracks may extend completely through the slab cross-section, but the slab does not act as if it is broken. Spalls may be heavy but they do not affect the structural integrity of the slab. Settlement may be occurring, which increases the traffic impact on the bridge.

Condition State 4: The slab is broken or rocks under traffic loads. Settlement is excessive and cannot be corrected without increasing the size of the slab.

NOTES:

Bridge Railing

Element:

Number	Description	Units
330	**Metal Bridge Railing - Coated**	**LF**

Condition State 1: There is no evidence of active corrosion. Protective coating is sound and functioning as intended to protect the element.

Condition State 2: Surface or freckled rust has formed or is forming on the coated metal. Protective coating may have minor areas of deterioration.

Condition State 3: Surface or freckled rust is prevalent. Protective coating is no longer effective. There may be exposed metal, but there is no active corrosion causing loss of section.

Condition State 4: Corrosion may be present, but any section loss due to active corrosion is measurable and does not affect the strength or serviceability of the element.

Condition State 5: Corrosion is advanced. Section loss is sufficient to warrant analysis to ascertain the impact on the ultimate strength and/or serviceability of the element.

Element:

Number	Description	Units	NBI#
331	**Concrete - Bridge Railing**	**LF**	**58**

Condition State 1: The element shows no deterioration. There may be discoloration, efflorescence, and/or superficial cracking but without effect on strength and/or serviceability.

Condition State 2: Minor cracks and spalls may be present. Reinforcing may be exposed with some corrosion. Strength and/or serviceability are not affected.

Condition State 3: Advanced deterioration. Corrosion of reinforcement and/or loss of section are sufficient to warrant analysis to ascertain the impact on the strength and/or section is sufficient to warrant analysis to ascertain the impact on the strength and/or serviceability of the element.

NOTES:

BRIDGE RAILING

Element: Number	Description	Units	NBI#
332	**Timber - Bridge Railing**	**LF**	**58**

Condition State 1: There is no decay. There may be minor cracks, splits and/or checks.

Condition State 2: There may be decay with or without splitting, cracking, checking or crushing but none is sufficiently advanced to affect serviceability.

Condition State 3: Advanced deterioration. Decay, splits, cracks or crushing has produced loss of strength that may affect the serviceability of the element.

Element: Number	Description	Units	NBI#
333	**Miscellaneous - Bridge Railing**	**LF**	**58**

Condition State 1: The element shows no signs of deterioration. There may be minor cracking, corrosion and/or other minor deterioration having no affect on strength or serviceability.

Condition State 2: Minor cracking, spalls, decay of timber portions or corrosion of metal may be present.

Condition State 3: Advanced deterioration. Corrosion, decay or loss of section is sufficient to warrant analysis to ascertain the impact on the serviceability or strength of the element.

Element: Number	Description	Units
334	**Metal Bridge Railing - Uncoated**	**LF**

Condition State 1: There is no evidence of active corrosion of the uncoated metal.

Condition State 2: There is little or no evidence of active corrosion. Surface or freckled rust has formed or is forming on the uncoated metal.

Condition State 3: Corrosion may be present, but any section loss due to active corrosion is measurable and does not affect the strength or serviceability of the element.

Condition State 4: Corrosion is advanced. Section loss is sufficient to warrant analysis to ascertain the impact on the ultimate strength and/or serviceability of the element.

NOTES:

OTHER SUBSTRUCTURE MATERIALS

Element: Number	Description	Units	NBI#
211	**Other - Pier Wall**	**LF**	**60**
217	**Other - Abutment**	**LF**	**60**

Condition State 1: There is little or no deterioration. Surface defects only are in evidence.

Condition State 2: There may be minor deterioration, cracking and weathering. Mortar in joints may show minor deterioration.

Condition State 3: Moderate to major deterioration and cracking. There is major deterioration of the joints.

Condition State 4: Major deterioration, splitting, or cracking of materials may be affecting the structural capacity of the element.

NOTES:

SMART FLAGS

Smart Flag	Description	Units
356	**Steel - Fatigue Cracks - 1 per bridge**	**EA**

Condition State 1: Fatigue damage to the bridge has been repaired or arrested. The bridge may still be fatigue prone.

Condition State 2: Fatigue damage exists which is not arrested. *This condition state should be used the first time this element is identified and at any other time when additional fatigue damage occurs).*

Condition State 3: Fatigue damage exists, which warrants analysis of the element to ascertain the serviceability of the element or the bridge.

Smart Flag	Description	Units
357	**Pack Rust - 1 per bridge**	**EA**

Condition State 1: The connection is showing signs of rusting between plates. Seams of the connections exhibit rust staining.

Condition State 2: Rusting between plates is beginning to distress the connection. Minor swelling exists.

Condition State 3: Rusting between plates has caused serious distress to the connection. The plates may be badly distorted; however, all connectors (rivets/bolts) are still functioning.

Condition State 4: Rusting between plates has caused serious distress to the connection, which warrants analysis of the bridge to ascertain the impact on the serviceability of the bridge. Some rivets or other connectors may have popped or are no longer effective.

Smart Flag	Description	Units
358	**Top of Deck Cracking**	**EA**

Condition State 1: The surface of the deck is cracked, but the cracks are either filled/sealed or insignificant in size (hairline to 1/32") and density to warrant repair activities.

Condition State 2: Unsealed cracks exist in the deck, which are of moderate size (1/32" to 1/16") or density.

Condition State 3: Unsealed cracks exist in the deck, which are of moderate size (1/16" to 1/8") and density.

Condition State 4: Unsealed cracks exist in the deck, which are of severe size (> 1/8") and/or density.

NOTES:

Smart Flag	Description	Units
359	**Soffit (under-surface of Concrete Decks and Slabs)**	**EA**

Condition State 1: The under-surface of the deck or slab has no symptoms of distress. Any cracking that is present is only superficial (hairline to 1/32")

Condition State 2: The under-surface of the deck or slab shows no evidence that active corrosion is occurring in the deck (There is no rust staining or spalling which could be attributed to active corrosion). However, the cracking and/or efflorescence on the under-surface are light to moderate. **(2-5%)**

Condition State 3: The under-surface of the deck or slab shows no evidence that active corrosion is occurring in the deck (There is no rust staining or spalling which could be attributed to active corrosion) However, the cracking and/or efflorescence on the under-surface is heavy to severe. **(5-10%)**

Condition State 4: Light to moderate rust staining and/or spalling on the under-surface of the deck indicates that active corrosion is occurring in the deck. **(10-25%)**

Condition State 5: Heavy to severe rust staining and/or spalling on the under-surface of the deck indicates that active corrosion is occurring in the deck. **(> 25%)**

NOTES:

Smart Flag	Description	Units
360	**Settlement**	**EA**

Condition State 1: Some of the bridges supporting elements are showing signs of visible settlement or rotation but due to earlier repairs or other signs, the settlement appears to have stabilized.

Condition State 2: Settlement or rotation of the bridge supporting elements show signs of continuing and if left un-arrested could cause adverse impacts to the bridge.

Condition State 3: Settlement or rotation of the bridge supporting elements is significant enough to warrant analysis of the bridge.

NOTES:

SMART FLAGS

Smart Flag	Description	Units
361	**Scour**	**EA**

Condition State 1: Scour exists at the bridge site but is of little concern to the structural integrity of the bridge.

Condition State 2: Scour exists at the bridge site and if left unchecked could adversely impact the structural integrity of the bridge.

Condition State 3: Scour is significant enough to warrant analysis of the bridge.

NOTES: After scour has been repaired, leave the scour smart flag on the report. If after 6 years from the time of the repair, the scour has not redeveloped, the smart flag should be removed.

Smart Flag	Description	Units
362	**Traffic Impact**	**EA**

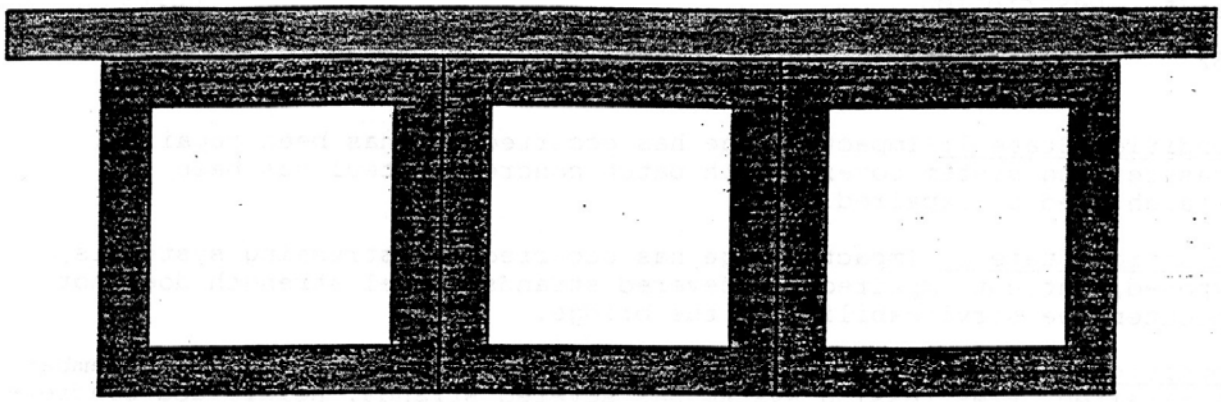
Condition State 1: Impact damage has occurred but has been repaired. Prestressing system covered with patch concrete. Steel has been straightened or repaired.

Condition State 2: Impact damage has occurred. Prestressing system is exposed, but not impaired. No severed strands. Steel strength does not threaten the serviceability of the bridge.

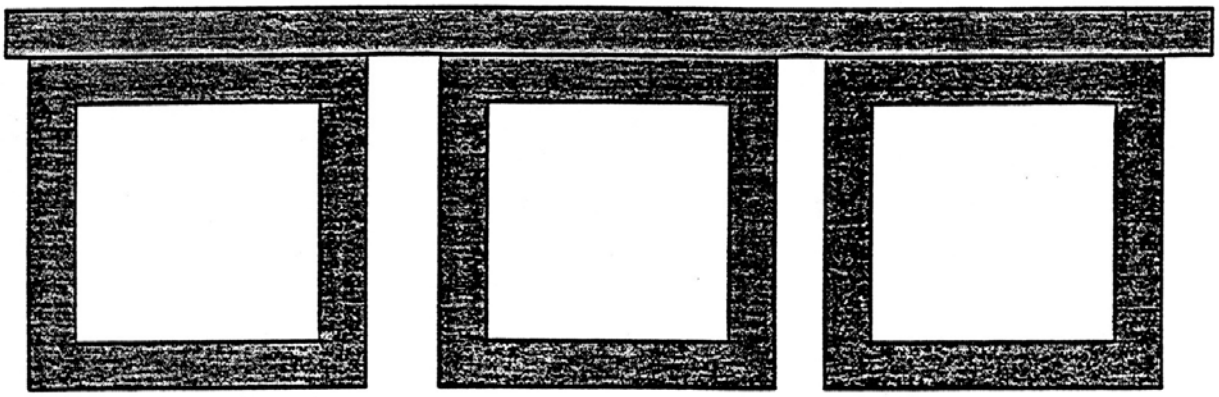
Condition State 3: Impact damage has occurred and strength of the member is impaired. Prestressing system has severed strands. Reinforced concrete members have severed and bent rebar. Steel members are bent excessively or torn. Analysis is warranted to ascertain the serviceability of the bridge.

NOTES:

APPENDIX "A" GIRDER NOTES



3 Girders



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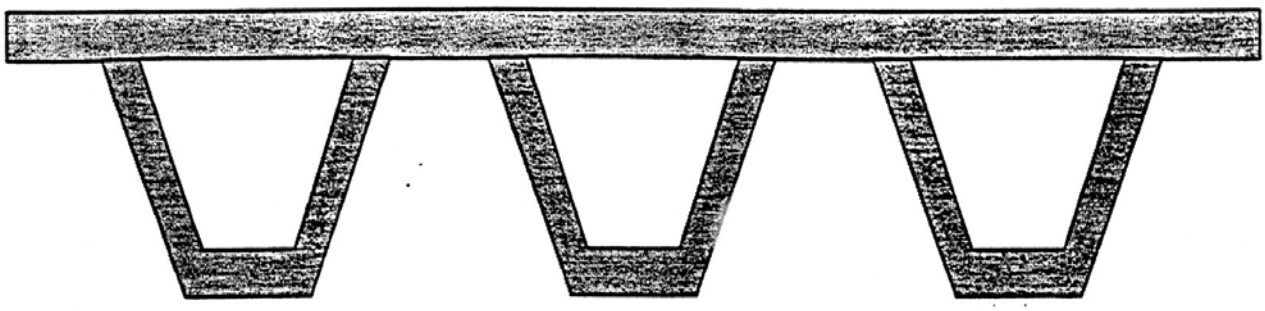
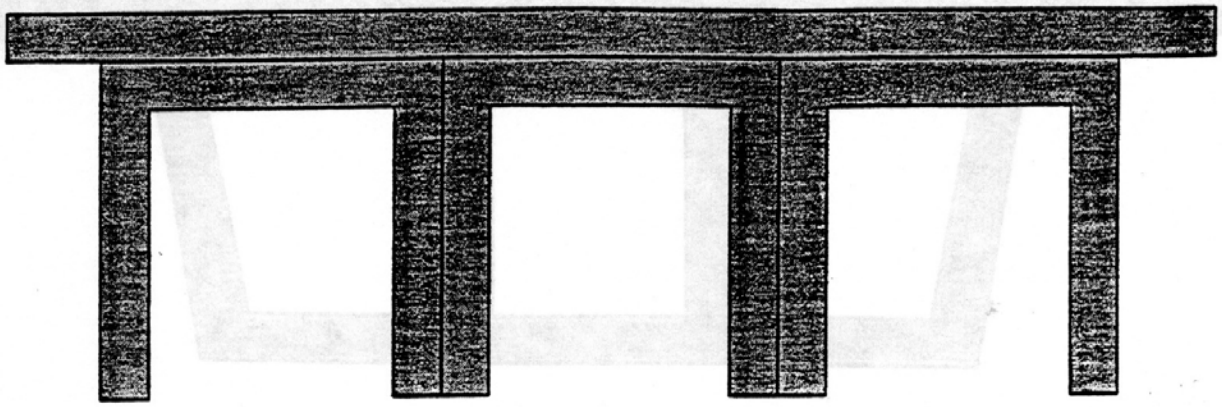


3 Girders

APPENDIX "A" GIRDER NOTES - continued



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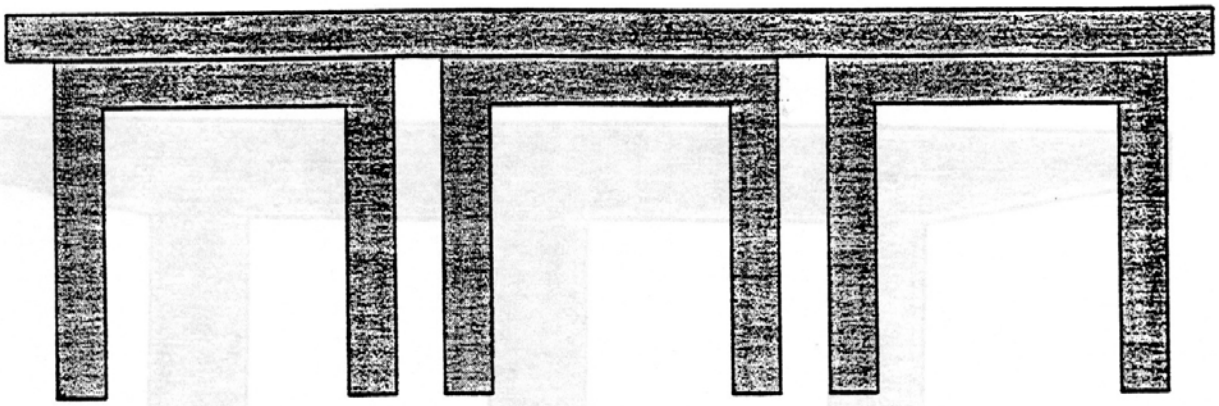
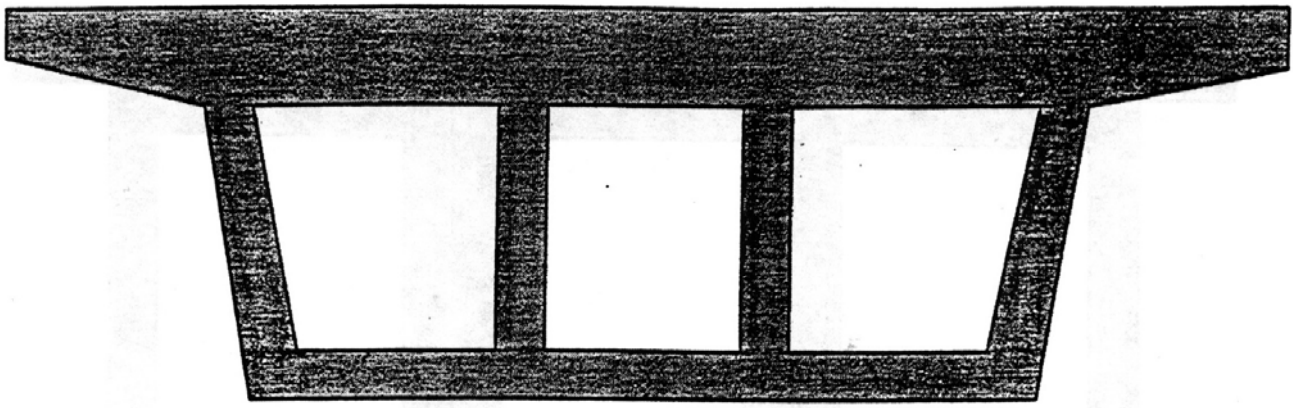
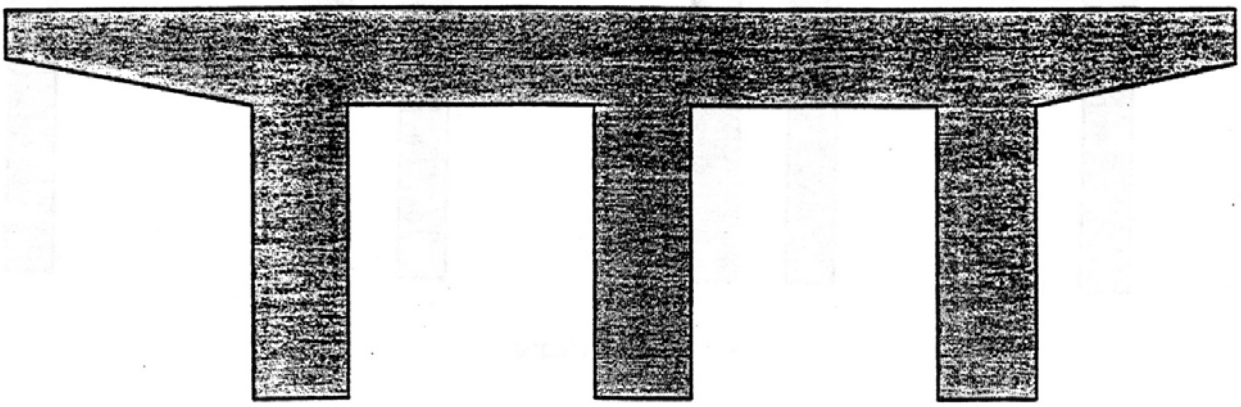


3 Girders

APPENDIX "A" GIRDER NOTES - continued



1 Girder



3 Girders

APPENDIX "B" ENVIRONMENT NOTES

The rate at which an element deteriorates is dependent on its environment along with other contributors. For the purpose of bridge management, environment includes the common factors of climate, soil, etc. but also considers maintenance and operating practice for a particular highway district. A standard practice of heavy salt usage in the winter worsens the environment of a deck. Routine cleaning of joints and bearing units would tend to improve the environments for these elements.

Since the environment of an element may vary from bridge to bridge, it makes sense to have the inspector assign environments to elements for bridges that they inspect. The following are Pontis environment definitions to assist you in this task:

1. **Benign** - This environment **WILL NOT** be used. Please always choose an environment of 2, 3, or 4. Pontis default is environment 1. Always check this item when you add a new element or a new structure.

2. **Low -** Environmental factors and/or operating practices either do not adversely influence the condition of the element or their effects are substantially lessened by application of effective protective systems.

   Examples:
   Girders are in a moderate climate and/or supporting a protected deck with joints in good condition.

   Column supporting a superstructure that is protected and well maintained

   Abutment where there is no joint above or joint is well maintained.

   Bearing units are supporting a superstructure in a moderate environment and/or routinely maintained.

3. **Moderate -** Any change in the condition of the element is likely to be quite normal as measured against those environmental factors and/or operating practices that are considered typical by the agency.

   Examples:
   Column supporting a pier cap in a severe environment.

   Protected deck in an area with low salt usage.

   Elastomeric joint seal, that is subject to ultraviolet light and weather, but cleaned out routinely.

4. **Severe -** Environmental factors and/or operating practices contribute to the rapid decline in the condition of the element.

   Examples:
   Deck joint is not routinely cleaned, or is subject to damage from snow plow operation.

   Unprotected deck is in an area that has heavy salt usage.

   Unprotected pier cap supporting superstructure with leaking joints and/or heavy salt usage.

The environmental designation of a bridge element can change over time as
It would if operating policies were changed, e.g., use of road salt was
Reduced, maintenance policy to routinely clean joints and bearings was adopted. However, by definition the designation cannot change as the result of maintenance actions or deterioration.

APPENDIX "C" ELEMENT DESCRIPTIONS

012 **Concrete Deck Bare:** This element defines those concrete bridge decks with no surface protection of any type that are constructed with uncoated reinforcement. Report the condition state that represents the condition of the entire deck.

013 **Concrete Deck Unprotected with A/C Overlay:** This element defines those concrete bridge decks with no surface protection of any type that are constructed with uncoated reinforcement. The deck is covered with an asphaltic overlay. Report the condition state that represents the condition of the entire deck.

014 **Concrete deck Protected with A/C Overlay:** This element defines those bridge decks with a membrane, having uncoated reinforcement and the membrane protected with an asphaltic concrete overlay. Report the condition state that represents the condition of the entire deck.

018 **Concrete Deck Protected w/Thin Overlay (<1 inch):** This element defines those bridge decks that are protected with a thin overlay (e.g., portland cement, epoxy, resin, etc.) Report the condition state that represents the condition of the entire deck.

022 **Concrete Deck Protected w/Rigid Overlay:** This element defines those bridge decks that are protected with a rigid overlay (>1 inch). Report the condition state that represents the condition of the entire deck.

026 **Concrete Deck Protected w/Coated Bars:** This element defines those bridge decks constructed with coated (epoxy, galvanizing, stainless steel, etc.) reinforcement. The deck may be covered with some type of overlay. Report the condition state that represents the condition of the entire deck.

027 **Concrete Deck Protected w/Cathodic Protection:** This element defines those bridge decks protected with a cathodic system. The deck may or may not be covered with an overlay. Report the condition state that represents the condition of the entire deck.

028 **Steel Deck Open Grid:** This element defines those bridge decks constructed of steel grids that are open and unfilled. Report the condition that most nearly represents the entire deck and its connection devices.

029 **Steel Deck Concrete Filled Grid:** This element defines those bridge decks constructed of steel grids with either all of the openings or just those in the wheel lines filled with concrete. Report the condition state that most nearly represents the condition of the entire deck and its connection devices.

030 **Deck Corrugated/Orthotropic/etc.:** This element defines those bridge decks constructed of corrugated metal filled with portland cement concrete or asphaltic concrete or an orthotropic steel deck. The orthotropic deck may be covered with an asphaltic or resin concrete. Report the condition state that most nearly represents the condition of the entire deck.

031 **Timber Deck Bare:** This element defines those bridge decks constructed of wood. The decks may be longitudinally of transversely laminated or of planks. The decks may or may not be constructed with runners of metal or wood. Report the condition state that represents the condition of the entire deck.

032 **Timber Deck with AC or Granular Overlay:** This element defines those bridge decks constructed of wood. The decks may be longitudinally or transversely laminated or of planks. These decks are overlayed with asphaltic concrete or a granular material. Report the condition state that represents the condition of the entire deck.

038 **Concrete Slab Bare:** This element defines those concrete slab bridges with no surface protection of any type that are constructed with uncoated reinforcement. Report the condition state that represents the condition of the entire deck.

039 **Concrete Slab Unprotected w/AC Overlay:** This element defines those concrete slab bridges with no surface protection of any type that are constructed with uncoated reinforcement. The deck is covered by an asphaltic overlay. Report the condition state that represents the condition of the entire deck.

040 **Concrete Slab Protected w/AC Overlay:** This element defines those concrete slab bridges with the deck protected by a membrane, uncoated reinforcement, and the membrane protected with an asphaltic concrete overlay. Report the condition state that represents the condition of the entire deck.

044 **Concrete Slab Protected w/Thin Overlay:** This element defines those concrete slab bridges where the deck surface is protected with a thin (1-inch) overlay. Report the condition state that represents the condition of the entire deck.

048 **Concrete Slab Protected w/Rigid Overlay:** this element defines those concrete slab bridges where the deck surface is protected with a rigid overlay (>1-inch). Report the condition state that represents the condition of the entire deck.

052 **Concrete Slab Protected w/Coated Bars:** This element defines those concrete slab bridges with the superstructure constructed with coated reinforcement. The deck may be covered with some type of overlay. Report the condition state that represents the condition of the entire deck.

053 **Concrete Slab Protected w/Cathodic Protection:** This element defines those concrete slab bridges protected with a cathodic system. The deck may or may not be covered with an overlay. Report the condition state that represents the condition of the entire deck.

054 **Timber Slab - Bare:** Report the condition state that represents the condition of the entire deck.

055 **Timber Slab w/AC or Granular Overlay:** Report the condition state that represents the condition of the entire deck.

101 **Unpainted Steel Closed web/Box Girder:** This element defines those steel closed web/box girders that are not painted or are constructed of weathering steel.

102 **Painted Steel Closed Web/Box Girder:** This element defines those steel closed web/box girders that are painted.

104 **P/S Concrete Closed Web/box Girder:** This element defines those closed web/box girders that are constructed of prestressed concrete.

105 **Reinforced Concrete Closed Web/Box Girder:** This element defines those closed web/box girders that are constructed with reinforced concrete.

106 **Unpainted Steel Open Girder:** This element defines those steel open girders that are not painted or are constructed of weathering steel.

107 **Painted Steel Open Girder:** This element defines those steel open girders that are painted.

109 **P/S Concrete Open Girder:** This element defines those open girders that are constructed of prestressed concrete.

110 **Reinforced Concrete Open Girder:** This element defines those open girders that are constructed of reinforced concrete.

111 **Timber Open Girder:** This element defines those open girders that are constructed of timber.

112 **Unpainted Steel Stringer:** This element defines those steel stringers that are unpainted or are constructed of weathering steel.

113 **Painted Steel Stringer:** This element defines those steel stringers that are painted.

115 **P/S Concrete Stringer:** This element defines those stringers that are constructed with prestressed concrete.

116 **Reinforced Concrete Stringer:** This element defines those stringers that are constructed with reinforced concrete.

117 **Timber Stringer:** This element defines those stringers that are constructed of timber.

120 **Unpainted Steel Truss Bottom Chord:** This element defines the bottom chords of unpainted steel trusses or those constructed of weathering steel. Only report the lengths along the span. Do not add web member lengths.

121 **Painted Steel Truss Bottom Chord:** This element defines the bottom chords of painted steel trusses. Only report the lengths along the span. Do not add web members lengths.

125 **Unpainted Steel Through Truss (Excluding Bottom Chord):** This element defines the steel through trusses that are unpainted or are constructed of weathering steel. Only report the lengths along the span. Do not add web members lengths.

126 **Painted Steel Through Truss (Excluding Bottom Chord):** This element defines the steel through trusses that are painted. Only report the lengths along the span. Do no add web members lengths.

130 **Unpainted Steel Deck Truss:** This element defines the steel deck trusses that are unpainted or are constructed of weathering steel. Only report the lengths along the span. Do not add web members lengths.

131 **Painted Steel Deck Truss:** This element defines the steel deck trusses that are painted. Only report the lengths along the span. Do not add web members lengths.

135 **Timber Truss/Arch:** This element defines the truss/arches that are constructed of timber.

140 **Unpainted Steel Arch:** This element defines those steel arches that are unpainted or constructed of weathering steel. Only the report lengths along the span. Do not add web members lengths.

141 **Painted Steel Arch:** This element defines those steel arches that are painted. Only report the lengths along the span. Do not add web members lengths.

143 **P/S Concrete Arch:** This element defines those arches that are constructed of prestressed concrete.

144 **Reinforced Concrete Arch:** This element defines those arches (open/closed spandrel, earth filled, bowstring, etc.) constructed of reinforced concrete.

146 **Cable (not embedded in concrete)**

151 **Unpainted Steel Floor Beam:** This element defines steel floor beams that are not painted or are constructed with weathering steel.

152 **Painted Steel Floor Beam:** This element defines steel floor beams that are painted.

154 **P/S Concrete Floor Beam:** This element defines floor beams that are constructed of prestressed concrete.

155 **Reinforced Concrete Floor Beam:** This element defines floor beams that are constructed of reinforced concrete.

156 **Timber Floor Beam:** This element defines floor beams that are constructed of timber.

160 **Unpainted Steel Pin and/or Pin and Hanger Assembly:** This element defines steel pin and/or pin and hanger assemblies that are unpainted or constructed with weathering steel.

161 **Painted Steel Pin and/or Pin and Hanger Assembly:** This element defines steel pin and/or pin and hanger assemblies that are painted.

201 **Unpainted Steel Column or Pile Extension:** This element defines steel columns or pile extensions that are unpainted or are constructed with weathering steel.

202 **Painted Steel Column or Pile Extension:** This element defines steel columns or pile extensions that are painted.

204 **P/S Concrete Column or Pile Extension:** This element defines columns or pile extensions that are constructed with prestressed concrete.

205 **Reinforced Concrete Column or Pile Extension:** This element defines columns or pile extensions that are constructed with reinforced concrete.

206 **Timber Column or Pile Extension:** This element defines columns or pile extensions that are timber.

208 **Timber Wingwall:** This element defines wingwalls that are constructed of timber.

209 **Reinforced Concrete Wingwall:** This element defines wingwalls that are constructed of reinforced concrete.

210 **Reinforced Concrete Pier Wall:** This element defines those pier walls that are constructed of reinforced concrete.

211 **Other Pier Wall:** This element defines those pier walls that are constructed of materials that do not fit any of the above definitions.

215 **Reinforced Concrete Abutment:** This element defines those abutments that are constructed of reinforced concrete.

216 **Timber Abutment:** This element defines those abutments that are constructed of timber.

217 **Other Abutment:** This element defines those abutments that are constructed of materials that do not fit any of the above definitions.

218 **Submerged Reinforced Concrete Abutment:** This element defines those reinforced concrete abutments that are continuously submerged. This element is not to be confused with elements in a variable wet situation.

219 **Submerged Reinforced Concrete Pier Wall:** This element defines those reinforced concrete pier walls that are continuously submerged. This element is not to be confused with elements in a variable wet situation.

220 **Reinforced Concrete Submerged Pile Cap/Footing:** This element defines only those reinforced concrete pile caps and/or footings that are continuously submerged. This element is not to be confused with elements in a variable wet situation.

224 **Painted Steel Submerged Column or Pile Extension:** This element defines those painted steel columns or piles that are continuously submerged. This element is not to be confused with piles in a variable wet situation.

225 **Unpainted Steel Submerged Pile:** This element defines only those unpainted steel piles that are continuously and totally submerged. This element is no to be confused with piles in a variable wet situation.

226 **P/S Concrete Submerged Pile:** This element defines only those prestressed concrete piles that are continuously submerged. This element is not to be confused with piles in a variable wet situation.

227 **Reinforced Concrete Submerged Pile:** This element defines only those reinforced concrete piles that are continuously submerged. This element is not to be confused with piles in a variable wet situation.

228 **Timber Submerged Pile:** This element defines only timber piles that are continuously submerged. This element is no to be confused with piles in a variable wet situation.

230 **Unpainted Steel Cap:** This element defines all unpainted steel caps or those constructed of weathering steel.

231 **Painted Steel Cap:** This element defines all painted steel caps.

233 **P/S Concrete Cap:** This element defines all prestressed concrete caps.

234 **Reinforced Concrete Cap:** This element defines all reinforced concrete caps.

235 **Timber Cap:** This element defines all timber caps.

240 **Steel Culvert:** This element defines all metal (steel, aluminum, etc.) culverts, including arches, round or elliptical pies, etc.

241 **Concrete Culvert:** This element defines all precast and cast in place (conventional or prestressed) concrete arch, pipe and box culverts.

242 **Timber Culvert:** This element defines all timber culverts.

243 **Other Culvert:** This element defines all culverts that do not fit the above definitions.

300 **Strip Seal:**

301 **Pourable Joint Seal:**

302 **Compression Joint Seal:** This element defines those joints filled with a pre-formed compression type seal.

303 **Assembly Joint/Seal:** this element defines those joints filled with an assembly mechanism that may or may not have a seal.

304 **Open Expansion Joints:** This element defines those joints that are open and not originally designed to be filled.

310 **Elastomeric Bearing:** This element defines those bridge bearings that are constructed primarily of elastomers, with or without fabric or metal reinforcement.

311 **Moveable Bearing:** This element defines those bridge bearings that provide for both deflection and longitudinal movement by means of roller, rocker or sliding mechanisms.

312 **Enclosed/Concealed Bearing or Bearing System:** This element defines those bridge bearing seats that are enclosed so that they are not open for detailed inspection.

313 **Fixed Bearing:** This element defines those bridge bearings that provide for deflection only.

314 **Pot Bearing:** This element defines those high load bearings with confined elastomer. The bearing may be fixed against horizontal movement, guided to allow sliding in one direction, or float to allow sliding in any direction.

315 **Disk Bearing:** This element defines those high load bearings with a hard plastic disk. The bearings may be fixed against horizontal movement, guided to allow sliding in any direction, or floating to allow sliding in any direction.

320 **P/S Concrete Approach Slab:** This element defines those structural sections between the bridge abutment and the approach pavement that are constructed of prestressed concrete. Longitudinal joints may separate these structural sections into multiple slabs. (There may be one approach slab per traffic lane or there may only be one approach slab for the entire bridge approach.)

321 **Reinforced Concrete Approach Slab:** This element defines those structural sections between the bridge abutment and the approach pavement that are constructed of reinforced concrete. Longitudinal joints may separate these structural sections into multiple slabs. (There may be one approach slab per traffic lane or there may only be one approach slab for the entire bridge approach.)

330 **Metal Bridge Railing - Coated:** This element defines all types and shapes of coated metal bridge railing. Coatings may include paint, galvanizing, weathering steel patina, etc.

331 **Concrete Bridge Railing:** This element defines all types and shapes of reinforced concrete bridge railing. All elements of the rail must be concrete.

332 **Timber Bridge Railing:** This element defines all types and shapes of timber railing. All elements of the railing (except connectors) must be timber.

333 **Miscellaneous Bridge Railing:** This element defines all types and shapes of railing except those defined as METAL, CONCRETE, or TIMBER. This element will include cable rails, combinations of timber, concrete and metal, etc. Metal portions may or may not be painted or galvanized.

334 **Metal Bridge Railing – Uncoated:** This element defines all types and shapes of uncoated metal bridge railing.

356 **Steel - Fatigue:** This smart flag exists only on those bridges with steel elements, which are already showing fatigue damage. It should not be applied to steel bridges prior to fatigue damage becoming apparent. Once established, deterioration modeling can be used to obtain transition probabilities.

357 **Pack Rust:** This smart flag defines only those connections (including shapes in contact in built-up members) of steel bridges which are already showing signs of rust packing between steel plates.

358 **Deck Cracking:** This smart flag addresses deck cracking. Once a deck begins to show other distress more significant than cracking (spalling/delamination), the status of this smart flag is probably no longer important.

359 **Soffit (or under surface) of Concrete Decks and Slabs:** This smart flag address deck distresses through visual inspection of the deck soffit (under-surface). It is extremely valuable when the top surface of the deck is covered with an overlay.

360 **Settlement:** This smart flag addressed substructure settlement distresses that are evident during visual inspections. Its primary purpose is to identify bridges that are experiencing settlement and to provide some measure of the magnitude of that settlement. The normal core condition state language does not address settlement.

361 **Scour:** This smart flag addresses scour distresses that are evident during visual inspections. Its primary purpose is to identify bridges that are experiencing scour and to provide some measure of the magnitude of scour.

362 **Traffic Impact:** This element is used to report distress of any element, due to vehicle impact.

APPENDIX "D" PONTIS REPORTS

The example of the Initial Assessment Form found in this Appendix may prove to be handy while performing initial element identification and assessment. You do not need to send a copy of these reports back with your updated information. This form is provided only for your convenience. Please make copies of the form as needed. (Next Page)

Idaho Transportation Department

Pontis Field Inspection Report

Bridge Key: _____ Structure Name:_____

Feature Intersected: _____ Location: _____

Admin Jurisdiction: _____

Xref Structure Name: _____ District: _____

Element	Element Description	Env.	Total Qty	Units	%State 1	%State 2	%State 3	%State 4	%State 5

Notes:

Idaho Transportation Department

Pontis Field Inspection Report

Bridge Key: _____ Structure Name:_____

Feature Intersected: _____ Location: _____

Admin Jurisdiction: _____

Xref Structure Name: _____ District: _____

Element	Element Description	Env.	Total Qty	Units	%State 1	%State 2	%State 3	%State 4	%State 5

Notes:

Idaho Transportation Department
Pontis Field Inspection Report

Bridge Key: _____ Structure Name: _____

Feature Intersected: _____ Location: _____

Admin Jurisdiction: _____

Xref Structure Name: _____ District: _____

Wearing Surface & Dead Load Information

Asphalt: _____inches Concrete: _____inches
Granular: _____inches Timber: _____inches

Additional Condition Information

ROADWAY APPROACHES: _____
_____
_____
_____

CURBS: _____
_____
_____
_____

EMBANKMENT: _____
_____
_____
_____

CHANNEL: _____
_____
_____
_____

SIGNS: _____
_____
_____
_____

GUARDRAIL: _____
_____
_____
_____

UTILITIES:_____
_____
_____
_____

WORK ACCOMPLISHED: _____
_____
_____
_____

MTCE RECOMMENDATIONS: _____
_____
_____
_____
_____
_____

Inspector:_____ Date:_____

Idaho Transportation Department
Structure Inventory and Appraisal Update

Bridge Key: _____ Structure Name: _____

(6)Feature Intersected: _____ (9)Location: _____

Xref Structure Name: _____ Admin Juris: _____

IDENTIFICATION

(1) State: 160
(2) District: _ _
(3) County: _ _ _
(4) Place Code: _ _ _ _ _
(5) Inventory Route: _ _ _ _ _ _ _ _ _
(7) Facility Carried: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
(11) Milepoint: _ _ _ . _ _ _
(12) Base Highway Network: _
(13a) LRS Inventory Route: _ _ _ _ _ _ _ _ _ _
(13b) LRS Sub Route: _ _
(16) Latitude: _ _ d _ _ ' _ _ "
(17) Longitude: _ _ _ d _ _ ' _ _ "
(98) Border Bridge Code/Pct: _ _ _ / _ _
(99) Border Bridge Number: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
Macs Segment On Route: _ _ _ _ _ _
Macs Segment Under Route: _ _ _ _ _ _
Macs Segment Other: _ _ _ _ _ _
Drawing Number: _ _ _ _ _ _
Project Key Number: _ _ _ _ _
Inspection Area: _ _ _ _

STRUCTURE TYPE & MATERIALS

(43) Main Span Material/Design: _ / _ _
(44) Approach Span Material/Design: _ / _ _
(45) Number of Spans - Main Unit: _ _ _
(46) Number of Approach Spans: _ _ _ _
(107) Deck Type: _
(108a) Wearing Surface: _
(108b) Membrane: _
(108c) Deck Protection: _

CLASSIFICATION

(112) NBIS Bridge Length: _
(104) Highway System: _
(26) Functional Classification: _ _
(100) Defense Highway: _
(101) Parallel Structure: _
(102) Direction of Traffic: _
(103) Temporary Structure: _
(105) Federal Lands Highway: _
(110) Designated Natl Network: _
(20) Toll Facility: _
(21) Custodian: _ _
(22) Owner: _ _
(37) Historical Significance: _

GEOMETRIC DATA

(48) Maximum Span Length: _ _ _ _ _ ft
(49) Structure Length: _ _ _ _ _ _ ft
(50a) Curb/Sidewalk Width Lt: _ _ . _ ft
(50b) Curb/Sidewalk Width Rt: _ _ . _ ft
(51) Width Curb to Curb: _ _ _ . _ ft
(52) Width Out to Out: _ _ _ . _ ft
(32) Approach Roadway Width: _ _ _ _ ft
(33) Median: _
(34) Skew: _ _
(35) Structure Flared: _
(10) Vertical Clearance: _ _ . _ _ ft
(47) Total Horizontal Clearance: _ _ . _ ft
(53) Min Vertical Clr Over Deck: _ _ . _ _ ft
(54a) Min Vertical Underclearance Ref: _
(54b) Min Vertical Underclearance: _ _ . _ _ ft
(55a) Min Lat Underclearance Ref Rt: _
(55b) Min Lat Underclearance Rt: _ _ . _ ft
(56) Min Lat Underclearance Lt: _ _ . _ ft

Idaho Transportation Department
Structure Inventory and Appraisal Update

Bridge Key: _____ Structure Name: _____

(6)Feature Intersected: _____ (9)Location: _____

Xref Structure Name: _____ Admin Juris: _____

LOAD RATING

(31) Design Load: _
(64) Operating Rating: _ _ ton
(66) Inventory Rating: _ _ ton
(70) Bridge Posting: _
(41) Structure Status: _

CONDITION

(58) Deck: _
(59) Superstructure: _
(60) Substructure: _
(61) Channel/Channel Protection: _
(62) Culvert: _

AGE & SERVICE

(27) Year Built: _ _ _ _
(106) Year Reconstructed: _ _ _ _
(42a) Type of Service On: _
(42b) Type of Service Under: _
(28a) Lanes On: _ (28b) Lanes Under: _
(29) Average Daily Traffic: _ _ _ _ _ _
(30) Year of ADT: _ _ _ _
(109) Truck ADT: _ _
(19) Detour Length: _ _ _

APPRAISAL

(67) Structure Condition: _
(68) Deck Geometry: _
(69) Underclearance, Vert & Horiz: _
(71) Waterway Adequacy: _
(72) Approach Alignment: _
(36) Traffic Safety Features:
a)Bridge Rail: _
b)Transition: _
c)Approach Rail: _
d)Approach Rail Ends: _
(113) Scour Critical: _

PROPOSED IMPROVEMENTS

(75a) Type of Work: _ _
(75b) Work Done by: _
(76) Length of Improvement: _ _ _ _ _ _
(94) Bridge Improvement Cost: _ _ _ _ _ _
(95) Roadway Improvement Cost: _ _ _ _ _ _
(96) Total Project Cost: _ _ _ _ _ _
(97) Year of Cost Estimate: _ _ _ _
(114) Future ADT: _ _ _ _ _ _
(115) Year of Future ADT: _ _ _ _
Year Programmed: _ _ _ _

NAVIGATION DATA

(38) Navigation Control: _
(39) Vertical Clearance: _ _ _ . _ ft
(40) Horizontal Clearance: _ _ _ _ _ ft
(111) Pier Protection: _
(116) Lift Bridge Vert Clr: _ _ _ . _ ft

INSPECTIONS

(90) Inspection Date: _ _ / _ _ / _ _
(91) Inspection Frequency: _ _ months
(92) Supplemental Inspections Frequency:
a)Fracture Critical Detail: _ _ months
b)Underwater Inspection: _ _ months
c)Fatigue Detail (OS) Inspection: _ _ month
d)ReachAll Inspection: _ _ months
e)Confined Space Inspection: _ _ months
(93) Date of Supplemental Inspections:
a)FC Inspection Date: _ _ / _ _ / _ _
b)UW Inspection Date: _ _ / _ _ / _ _
c)Fatigue Detail (OS) Date: _ _ / _ _ / _ _
d)ReachAll Date: _ _ / _ _ / _ _
e)Confined Space Date: _ _ / _ _ / _ _

Special Equipment Needed: _

Idaho Transportation Department
Structure Inventory and Appraisal Update

Bridge Key: _____	Structure Name: _____
(6)Feature Intersected: _____	(9)Location: _____
Xref Structure Name: _____	Admin Juris: _____

POSTING INFORMATION

WEIGHT
Bars Load Analysis Date: _ _ / _ _ / _ _
Bars Analysis Required: _

	Load Rating Analysis IR (tons)	OR(tons)	Recommended Posting(tons)		Actual Posting(tons)
H Truck	_ _	_ _			
HS Truck	_ _	_ _			
Type3 (3 axle)	_ _	_ _	Type3 (3 axle)	_ _	_ _
Type3S2 (5 axle)	_ _	_ _	Type3S2 (5 axle)	_ _	_ _
Type3-3(6 axle)	_ _	_ _	Type3-3 (6 axle)	_ _	_ _
			Max Axle	_ _	_ _

HEIGHT

	Recommended	Actual
Height Posting:	_ _ . _ _ ft	_ _ . _ _ ft

WIDTH

	Recommended	Actual
Single Lane All Vehicles:	_	_
Single Lane Trucks/Buses:	_	_

****

UNDER RECORD INFORMATION (if applicable)

(5) Inventory Route: _ _ _ _ _ _ _ _ _
(7) Facility Under Structure: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
(10) Minimum Vertical Clearance: _ _ . _ _ ft
(47) Inventory Route Total Horiz Clr: _ _ . _ ft
(11) Milepoint: _ _ _ . _ _ _
(20) Toll: _
(26) Functional Classification: _ _
(29) ADT: _ _ _ _ _ _ (30) Year ADT: _ _ _ _ (109) Truck ADT: _ _
(100) Defense Highway Designation: _
(102) Traffic Direction: _
(104) Highway System: _
(110) Designated National Network: _

GLOSSARY

Bridge Management: All the managerial functions of an agency, necessary for policy analysis, planning, programming, budgeting and project decisions for bridges.

Bridge Inventory: The portion of the BMS database that identifies each bridge and its characteristics including location, configuration, components, material properties, and geometric attributes such as deck width, alignment, and clearances (horizontal and vertical).

Bridge Management System (BMS): Formal procedures and methods for gathering and analyzing bridge data for the purpose of predicting future bridge conditions, determining optimal policies, and recommending projects and schedules within budget and policy constraints. A BMS includes a network-level computerized database and decision support tool that supplies analyses and summaries of the data, uses models and algorithms to make alternative policies and programs may be efficiently considered, and facilitates the ongoing collection, processing, and updating of necessary data.

Condition Data: All bridge data items which change as a result of deterioration, traffic, or maintenance.

Condition State: A particular classification of the condition of a bridge element. Bridge elements can transition among condition states as the result of deterioration and maintenance. Usually, condition states are defined by dividing the range of a continuous variable into a small number of discrete ranges, where a particular unit of a bridge element can be in only one state at any given time.

Deferred Maintenance: A bridge maintenance activity delayed past the optimum time, which may cause a need for a more major action.

Do-Nothing (DN): A policy in which no maintenance action is taken except for routine maintenance or incidental repairs that are not analyzed in Pontis.

Do-Something: a policy in which one of the defined Pontis MR&R actions are performed at a given time.

Element: A single type of component or part of a bridge, characterized by the type of member and its material, at the level of detail required for network-level analysis.

Environment: The classification of a bridge according to its exposure to weather or operating practices that encourages deterioration. This classification does not change with deterioration or maintenance action.

Functional Obsolescence: The state or condition in which it is a part or ceases to serve its purpose of function. A bridge is often considered to be functionally obsolete if its deck geometry, load capacity, clearance or alignment of the approach roadway no longer meets the usual criteria for the highway it serves.

Improvement: All actions that increase the ability of a bridge to meet user demands. These include increasing the amount of traffic which may pass over or under the structure (by increasing clearances), reducing the user cost of using the structure (by widening), raising the weight limit on a bridge which previously had been allowed to remain posted, and replacing a bridge with a functionally superior one.

Inventory Data: Data describing the physical, functional, location, and jurisdictional characteristics of a bridge, including bridge type and material.

Level-of-Service Criteria: Criteria for assessing the adequacy of a bridge to service traffic based on the highway system, expected traffic loads, and other site-specific factors.

Load Rating: There are two types of load rating: (1) inventory rating - the load or weight level of a vehicle type which can safely utilize the bridge for an indefinite period of time, and (2) operating rating - the absolute maximum permissible load level to which the structure may be subjected for a vehicle type.

Load Capacity: The bearing capacity based upon structural analysis and usually expressed in terms of the inventory rating (the maximum load a structure can carry indefinitely) or the operating rating (the absolute maximum permissible load).

Location Reference System: Elapsed distance or coordinate description of bridge location.

Long Term: More than 10 years in to the future.

Maintenance Management System: Decision support system for planning, budgeting, scheduling, and monitoring maintenance work, as well as reporting maintenance accomplishments and labor, equipment and material costs. A maintenance management system identifies urgent and emergency repairs and is able to issue work orders.

Member: A single type of component or part of a bridge, which has been distinguished from the other members because of its unique deterioration behavior, maintenance requirements, cost or other factors important to network-level analysis.

MR&R Benefit: The long term average biennial cost savings associated with taking a recommended action now rather than waiting two years and taking the action that would be recommended then.

MR&R: All maintenance, repair, and rehabilitation actions that offset the deterioration caused by traffic, weather, or any chemical or physical process. This includes such actions as cleaning, painting, patching, rehabilitation, and in kind replacement.

National Bridge Inventory (NBI): The database containing structure inventory, inspection, and appraisal information collected in accordance with the Federal Highway Administrations recording and Coding Guide for the Structure Inventory and Appraisal of the Nations Bridges. Also refers to the data standards imposed on the State inventories by FHWA to facilitate reporting.

Net Benefits: The total economic impact of a project or program, often defined as the difference between the uninflated present value of the future stream of benefits (usually expressed in terms of savings in user costs) and the uninflated present value of the future stream of costs (usually agency costs).

Network-Level: An analysis or policy which applies to a whole set of bridges and does not distinguish among individual bridges.

Pavement Management System (PMS): As defined in the AASHTO Guidelines on PMS, it is a set of tools or methods (including decision support software) that can assist decision-makers in finding cost-effective strategies for providing, evaluating, and maintaining pavements in serviceable condition.

Pipeline: A project whose implementation has already begun and which must be scheduled.

Preventative Maintenance: An activity performed on the structure of its elements to delay or curve the onset of deterioration.

Priority Programming: Scheduling bridge actions based on a hierarchy or ranking of importance of needs.

Probabilistic Deterioration Model: Estimates the probability or likelihood of different condition levels of a bridge element, component, or overall structure on the basis of variables believed to influence its deterioration.

Project-Level: An analysis or action, which applies to one single bridge or part thereof, and does not consider simultaneously the other bridges in the network.

Rehabilitation: An action performed on a bridge to raise its overall level-of-service but not to such a degree that it constitutes and improvement to the original structure. Requires higher levels of resources and scope than preventative and routine maintenance.

Routine Maintenance: Cleaning of scuppers, sweeping of the deck, and other maintenance actions that are not budgeted in Pontis.

Seismic Retrofit: Work undertaken on a bridge to reduce or eliminate the impacts of an earthquake.

Serviceability: The degree to which a bridge provides satisfactory service from the point of view of its users.

Short Term: Zero to 10 years.

Smart Flags: Smart flags are used to track particular types of distress, which are not included in the standard condition state language for element(s) of concern. Smart flags are defined with a condition state language just like elements, but they do not have feasible actions associated with them. Smart flags are not considered in the MR&R optimization model, but they may be taken into account for project programming through the use of formula files.

Steady State: The assumption of the Pontis MR&R optimization model that the recommended policy is sustainable over the long-term and that the distribution of elements among condition states does not change from year to year when the optimal policy is followed, after the optimal condition levels have been reached.

Substructure: The portion of the bridge that typically includes piers, abutments, piles, fenders, footings, and other bridge components below the deck and girder/stringers.

Sufficiency Rating: A rating calculated from a formula that is a function of the structural adequacy and safety, functional obsolescence, and serviceability of a bridge.

Superstructure: The portion of the bridge that typically consists of the railing, deck (including wearing surface), joints, beams/girders, bracing, bearings, and other components above the substructure.

User Costs: Costs borne by bridge users, including those who would use the bridge if it were physically possible. The costs include travel time, fuel consumption, accidents, and delays due to maintenance and improvement actions.

User Benefits: Savings in user costs due to an improvement or increased level of service of the bridge.

"What-if" Analysis: A repetitive analysis where each iteration differs in some input variable. Often used for sensitivity analysis or adjusting policies to account for non-economic factors.